

DOCUMENT RESUME

ED 301 309

PS 017 271

AUTHOR Nakielska-Cremers, Z.
TITLE Determinants of Outstanding Success in Education: An Investigation among Finalists of Competitions in Polish Language and Mathematics for Pupils in Polish Primary Education.
PUB DATE Aug 88
NOTE 530p.; Page 288 is missing from the original document.
PUB TYPE Reports - Research/Technical (143)
EDRS PRICE MF02/PC22 Plus Postage.
DESCRIPTORS *Academic Achievement; *Competition; Elementary Education; *Elementary School Students; Extracurricular Activities; Foreign Countries; *Individual Characteristics; *Institutional Characteristics; Language Arts; Mathematics; *Success
IDENTIFIERS *Poland

ABSTRACT

This two-part volume provides a theoretical study of determinants of success in education and reports on an empirical study of competition in language and mathematics for students in the highest grades of Polish grade schools in 1976-77. The empirical study investigated factors associated with outstanding success in educational endeavors. Of special interest was the chance for success for persons from social groups that were less privileged than others. Data on 4,995 finalists, 1,165 grade schools, and 9,454 classmates of finalists were collected from 1,212 teachers, 777 secondary school teachers, 1,177 mentors, and 93 contest organizers. Chapters in Part One discuss: (1) the study's purpose; (2) related policy issues; (3) success in education as a form of societal success; (4) abilities students need to attain success and determinants of these abilities; (5) ideas, social movements, and legal regulations bearing on social equality and success; (6) principles for grouping pupils for instruction and for developing students' abilities in out-of-class activities; (7) Polish primary education in the 1970s and efforts to reform it; and (8) extra-curricular competitions in school subjects. Chapters in Part Two cover: (1) research questions on determinants of success in the Polish language and mathematics competitions; (2) aspects of competitions; (3) pupils' place of residence in relation to success; (4) relationships between characteristics of pupils' families and pupils' success at competitions; (5) the relation of the finalists' orientation in life to their chances of success; (6) characteristics of finalists; (7) information on finalists' mentors; (8) characteristics of the schools; (9) conditions of participation; (10) finalists' subsequent academic achievement in comparison with that of classmates in the first year of high school; (11) main findings. Part Two also offers a conclusion and general discussion. Chapter 20 provides a summary in Dutch. Sixteen pages of references are cited. Appendices provide questionnaires and data. (RH)

PS C17271

ED301309

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☐ This document has been reproduced as
received from the person or organization
originating it.

☒ Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official
OERI position or policy.

DETERMINANTS OF OUTSTANDING SUCCESS IN
EDUCATION. AN INVESTIGATION AMONG
FINALISTS OF COMPETITIONS IN POLISH
LANGUAGE & MATHEMATICS FOR PUPILS IN
POLISH PRIMARY EDUCATION.

Z. NAKIELSKA-CREMERS

AUGUST 1988

DEPARTMENT OF SOCIOLOGY,
GRONINGEN STATE UNIVERSITY,
THE NETHERLANDS

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Z. Nakiel ska-
Cremers

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

ACKNOWLEDGEMENTS

This study would not have been written without the help and kindness of many scientists, friends, acquaintances, my family, school superintendants and other organisers of the competitions, the participants' mentors, other teachers and head masters and - first and for all - the participants in the regional and provincial competitions themselves. I thank them all sincerely and hope they will enjoy the result of this effort.

Some of these persons added considerably to the quality of this study. Their names and merits will be stipulated here.

I acknowledge my special gratitude to:

professor dr. Marian Albinski (Department of Sociology, Catholic University Nijmegen, the Netherlands) for:

- having read and positively valued my 21 publications and the Polish and English manuscripts of my two books;
- his advocacy of the decision to recognise my qualifications at the level of a graduate in sociology, which opened the way to the promotion at a Dutch university;
- having recognised the Polish version of my study as suited for publication as a piece of scientific work;
- encouraging me to translate the study in a Western language;
- his numerous suggestions for improvement of this work;
- having stimulated me to defend the thesis in the Netherlands;
- his understanding of my problems and his aid in the hardest moments of my work at this study.

drs. Willem J.G. Cremers for:

- his numerous critical remarks as the manuscript was being written;
- help with the statistical analyses;
- translation of the Polish text in English;
- editing the manuscript;
- the graphical lay-out;
- laying aside his scientific work, in order to help me to finish this study;
- trying to understand my troubles when becoming rooted in my adoptive country.

dr. Jaap Dronkers (Department of Sociology, Catholic University Brabant, the Netherlands) for:

- having stimulated me to write and publish this study;

- the opportunity he gave me to discuss part of this study in the work-group on longitudinal research in social science;
- his kind review of this study.

professor Everett D. Edington E.D. (College of Education, New Mexico State University, USA) for:

- scientific consultation;
- his inspiring evaluation of this study;
- recommendation of this book for publication on microfilm in the scientific information system of ERIC;
- the indispensable books and bibliographic information he gave me as a present, which were hardly accessible to me;
- the systematic, kind and unselfish stimulation of my striving for a place among Western scientists.

professor dr. Thomas J. IJzerman (Department of Sociology, Groningen State University, the Netherlands) for:

- having attentively and critically read the subsequent versions of this study;
- the dozens of questions and suggestions for improvement of this work;
- having supervised my scientific work at Groningen University during one year;
- consultation during my individual work;
- his support at my strivings for a regular and paid scientific job at a university.

professor dr. hab. Mikołaj Kozakiewicz (Institute for Rural Development, Polish Academy of Sciences) for:

- supervising and guiding my scientific work at the Academy of Sciences during seven years;
- consultation during my unpaid leave for study and the care for my children;
- shaping favourable conditions to provide and elaborate the research project;
- having attentively and critically read the research project, the questionnaires and the code book;
- help with the requisition of funds for the research;
- the kind evaluation of the thesis;
- agreeing with the defense of this thesis in the Netherlands and promoted by professors from Dutch universities.

professor dr. hab. Władysław Markiewicz (vice chairman of the Polish Academy of Sciences) for:

- having attentively and critically read the Polish and English version of this study;
- help with the requisition of research funds from the Committee 'Poland 2000' for coding, punching, checking and the computer analysis of the empirical data, writing and typing of the research report;
- his understanding for my opinions and his judicious help.

professor dr. G. Wim Meijnen (College of Education, University of Amsterdam, the Netherlands) for:

- having attentively and critically read this thesis;
- consultation during my scientific work;
- advice about the procedure of a promotion;
- having agreed to my employment at the University of Amsterdam for one year, in order to complete this study.

Jadwiga Nakielska, my mother, for:

- taking care of our children and mending the house;
- her patience and understanding during my intensified work to finish this study.

Moreover I express my gratitude to:

- dr. Jan Bethley for his suggestions to the English translation and his advice on some items of this study;
- mrs. Margot IJzerman for editing the English translation;
- the directors of the Institute for Rural Development of the Polish Academy of Sciences, professors Dyzma Gałaj and Marek Ignar for agreeing with the continuation of the elaboration of this study during my unpaid leave and the leave to educate my children;
- mgr. Zofia Orzechowska and mrs. mgr. Pielat and Frączak for the computer analysis;
- mrs. Carla Pluymaekers and those other public servants in Groningen and Amsterdam for their help with the requisition of financial support of my work at Dutch universities;
- the Polish Ministry of Education for the permission to provide the empirical investigation.

For their advice and suggestions for the solution of special problems in this study, I wish to thank professors J. Berting, J. Coleman, J. Damrosz, F. R. Filippow, I. Gadourek, M. L. Kohn, Z. Kwieciński, F. J. Mönks, W. Okoń, J. L. Peschar, T. Pilch, K. K. Piatonow, B. Popielski, H. K. Schwarzweller, J. Siewierski, M. J. Szymański, E. Velema, W. Wesołowski, T.

Wierzbicki, W. Wiśniewski, R. Wroczyński. Finally I thank T. I. Artemiewa, B. Czyżewska, A. Dudink, R. Görtzen, Z. Herman, W. Himminghofen, H. Kleijer, T. Kobierzycki, E. Kostowska-Watanabe, G. van Kooten-Zbikowski, J. van Loon, R. Mlot and P. Nijhoff for their valuable suggestions and help.

This work resulted from contacts and consultations with scholars from several countries, with divergent religious and socio-political attitudes and with different experiences in life.

The final form of this work rose from cognition of the problems of able children in Dutch preschool education and from attempts to solve these problems by private activities enriching the stay at school during half a year. These problems have only been stipulated, added to the spirit of this work, but need further elaboration.

PART ONE

DETERMINANTS OF SUCCESS IN EDUCATION

I. THE PURPOSE OF THIS STUDY

Success in education is often a precondition for success in other spheres of life. This is the major reason for engaging in a study of educational success. In many occupations and in many fields of social life, no success can be obtained without an appropriate level of knowledge (Wesołowski & Krauze 1981: 342; Wesołowski 1981: 260). Success in education is one of the most important factors for diminishing inequality between social groups.

1. Education and social equality.

Success in education may be the cause of differences between persons from the same social group. An improvement of the situation of some members of a group may stimulate others to positive changes in their own lives. The example of someone close may be more convincing than the example of somebody one knows only superficially or an example given in the media. This is not to say that the members of a given social group would all value the educational attainments of one of them immediately and with enthusiasm wish to follow such an example. This might even be the opposite in a case when success is obtained by someone who is not high in the group-hierarchy, when that success may cause feelings of threat within the group, especially among those in higher positions.

Success in education often leads to a transition into another social group. The new group may also be reluctant to accept the new member. When the success of an individual proves to be favourable both for the former and the new social group, and does not threaten the group-hierarchy it may be accepted by all members. Initially success in education and its connected social rise may have many unwanted and painful effects, both for the given person and for other members of the social group(s), because it disturbs the existing social order. In a later stage there are usually changes in these groups, and the given individual and his attainment can be assimilated.

Success in education is especially important during periods of profound scientific technical change. Automation causes a rapid fall in employment in material production. Many peoples'

lives are deprived of the rhythm of the workshop and its clear hierarchy. Much less knowledge is necessary to maintain a rhythm imposed from outside than when one has to be one's own supervisor and subordinate at once.

The development of communication poses ever new problems to the population. A lack of appropriate knowledge about the growing number of people and cultures one contacts might have an unfavourable impact on the faith of persons or societies.

1.1. The intrinsic value of education.

It must be stressed that education is not only a means to achieve one's purposes, but that it may also be a goal in life. This might be the case when education takes the form of scientific work. Such an activity might eliminate success in other spheres of life but it might also be helpful, especially when it concerns those other spheres. Research in the field of chemistry, for instance, might help less towards a successful personal life than research in the field of sociology, although outstanding chemical research might bring the researcher more financial profit than such sociological research. Whereas much sociological research may be done with moderate financial resources and therefore is open to a large group of specialists, a substantial part of research in the sciences requires vast investments (instrumentation, preparation etc.) and therefore is only open to those who happen to be employed as a scientific researcher, or have other ways of obtaining the necessary research-funds.

Stimulation for scientific activity is equally important. Those from culturally and educationally privileged groups have more possibilities to be stimulated than persons from a less favourable cultural background.

1.2. Training and failure at an early age.

Many thinkers (Hebb 1949; Bandura 1974; Pietrasinski 1978) stated that possibly early training has a positive effect on success. Others (Łopatkowa 1984) thought it necessary to allow children to enjoy life as long as possible, to keep their 'epidermic beauty', because they will meet sufficient stresses

and disappointments in adult life. Łopatkowa (1984) stated that children are less resistant for failures than adults. The earlier they experience big shocks, the greater the probability of psychical deformation and even of a threat to a child's life. She gave examples of deprivation among children who were unable to meet their parents' or teachers' educational aspirations. She stated that such tragedies were equally frequent in socially low and high privileged families. The cases in the latter families were less subject of scientific description, because those families scrupulously hid their childrens' tragedies.

Łopatkowa's view has often been confirmed with regard to expectations of success in all school subjects. Other studies pointed out that children of average ability can have great attainments when appropriately trained in at least one subject. The joy of childhood would not only be its carelessness, but also the documentation of a child's own values, the surpassing of weaknesses. It would be harmful for a child to expect high performance in all school subjects, in all fields of life.

The hypothesis that adults cope with stress less painfully than children, might be shaken from an ethical viewpoint. In fact, a child bears the consequences of stress mainly alone. Adults often spread the burden of their stress onto others with whom they are emotionally bounded, i.e. mainly onto their children. Frustrated adults have more possibilities of harming their children than frustrated children (especially small ones) have of harming their parents. It seems that training in stress-handling when a child is still under the care of its parents and teachers, does less personal and social harm than the stress that comes upon an adult unawares, when there are limited chances for protection by one's family and closest friends. Pupils who are not yet able to tell their parents about their problems, may not be given the care they need. The parents also have few opportunity of helping their child in school systems where there is no close co-operation between teachers and parents (e.g. when children do not take their school work home after the teacher's corrections, or when teachers do not inform the parents about a pupil's behaviour).

It may be concluded that early training in attainments in some school-subjects is useful with regard to later tasks in life.

Representatives of certain social groups experience less stress on their way to success than those from other groups. Individuals from (especially materially and culturally) more privileged groups suffer fewer stresses than persons from less privileged groups.

2. Education for a few versus education for everyone.

Two contrary positions have evolved with concern to the question how to establish the optimal number of educated persons in society.

2.1. An educated elite as driving force of social development.

Jensen (1978) supposed that a wide variation of the IQ (Intelligence Quotient) among a population would be optimal for the development of society. Populations of little differentiated IQ would be incapable of developing quickly. The degree of differentiation of IQ would be more important than its average level. In the USA 50% of the population would have an IQ between 90 and 110. When this proportion would be 90% that nation would not surpass the level of stone-age society or of primitive agricultural societies. Great cultures would distinguish themselves by a great number of geniuses, rather than by a vast amount of persons of average IQ.

2.2. Education at a high level for a majority.

A striving for the formation of an educated elite met the critics of authors like: Suchodolski (1970, 1972), IJzerman (1970), Kozakiewicz (1971a, 1971b, 1973), Dronkers & de Jong (1979), and Dronkers, de Jong & Saris (1982). These authors saw the need for education on a high level for the largest group of inhabitants. IJzerman (1970: 71-72) wrote:

"... a slight increase of the level of aptitude or ability of the big mass of normal people would have a much larger positive effect on the average aptitude-level of the total population, than even a sharp rise of the ability-level of the few gifted. The 'normal' may not be lost out of sight, therefore, also from an economic point of view. It is difficult to give a quantitative indication of the social contribution of the elite of the supernormal. Only when it is admitted that the mass can only progress by and

due to action of an elite, hence that this elite has to fulfill a social task, function or contribution that is disproportionately larger than would be suggested by the extent of that elite; only then it makes sense with regard to economy or usefulness to give this qualitatively exceptional category special care and exceptional facilities."

2.3. Possibly good education for everyone.

It must be remarked that a broad educational gap between the elite and the rest of the population might be useful with regard to short-term goals. On a longer term it may lead to cultural and also economical backwardness. A big distance between the level of knowledge of the elite and that of the other inhabitants might be a threat of mutual misunderstanding, leading to inappropriate undertakings of the elite and apathy or aggressive reactions on these by others.

The intentions of the elite may be used or implemented effectively by the rest of the population when there is little intellectual distance between these groups. Otherwise even the most ingenious ideas of the elite might be frustrated, or would have to wait until a next generation for their realization and the bridging of the knowledge-gap between both social groups.

Limits to membership of the elite may have a depriving effect on the elite itself, by way of lacking stimulation to realise ideas. The more people are able to add to their ideas, to criticise and to stimulate their elaboration, the larger the probability of a successful realization of these ideas.

The ability to learn is assumed to be a nation's resource. Use of this resource is only possible during the life of the individual. Waste of such resources is a loss for the given country and for other nations as well. Several countries have projects for better development and use of abilities therefore. Schools provided individualization in teaching methods, separate classes for gifted children, or out-of-school activities for such children. Sometimes special schools for the talented have been founded. It has been found that children with an IQ of 140 and over lose half of their time in ordinary schools. Those with an IQ over 170 wasted all their time (Hollingworth, 1942).

The need to develop talents became apparent in Western countries after the launch of the first satellite by the Soviet Union. In a reaction to this event many funds were set up,

schools, centres, and research institutes were founded in the USA to educate talented children and to provide research on this theme. The functioning of ordinary schools was improved. A stagnation of epoch-making scientific inventions caused a weakening of the public interest in higher education for less privileged social groups. The development of mass-production and the elimination of human labour by automation gave rise to a change of the life style of the less privileged. This has been illustrated by Walt Disney (1978): when Minny and her nephews no longer need to work, their activities consist of gardening, fishing and embroidering, i.e. a life without intellectual or social activity.

History teaches that great rulers have tried to improve the educational level of their subjects, to diminish the number of the illiterates. They knew that most material goods can be built in a short time as a result of a common effort of heads and shoulders. Goods of the mind that are not transmitted from generation to generation become extinct and with this the material goods disappear.

3. Equality in education.

Some authors assume that abilities have a bell-shaped frequency distribution. Thus the proportion of the population of those who are able to complete increasing levels of education diminishes. It is assumed, then, that within the various classes, strata, or large groups in society the structure of the potential of intellect is the same as in the society as a whole. The number of the talented would therefore be in proportion to their number in the whole population. Equality would refer then to such a situation, where one social group makes no more use of higher levels of education than the other groups (Borowicz 1985).

For a more extensive discussion of social equality the reader is referred to chapter IV.

3.1. Proportional representation.

The idea of a similarity of the distribution of abilities among the various social groups in society had many adherents in

socialist countries. Attempts have been made to augment the proportion of children from less privileged social groups in grammar schools and at universities and to reduce the proportion of children from more privileged groups in these types of education. These measures are known as positive discrimination. An expression of this policy was the introduction of extra points at examinations, preparatory courses, work practises, etc. for members of less privileged social groups.

Application of the principle of proportional representation in a situation of unchanged capacity at grammar schools and universities, implies the acceptance of a limitation of the chances for educational success of those from more privileged groups. These persons often concentrate all their activities on attainments in education, and on the acquisition of other privileges in that way, whereas they see no alternatives to schooling. Blocking these strivings leads to dissatisfaction, frustration.

It must be asked whether the principle of proportional representation is a principle of social conformation. Would it be an expression of conformism when the door to university is opened only for a small group of youth? Might higher education be profitable in each occupation? Could preference of the one at the expense of others evoke mutual hatred?

3.2. Intellectual potential.

When the outcomes of various investigations of abilities are to be believed, the intellectual potential of a normal person is enormous. The question would therefore be: how to create favourable conditions for their development. Schools, and among these the universities, are to serve this development. Limitation of the access to schools of high educational level, especially to universities, implies blocking the development of abilities: an irreversible waste of this national asset. The resignation of the development of talent, on behalf of an earlier start of occupational life, might be understandable in economically under-developed countries. In countries with a high level of apparent or hidden unemployment, however, it harms the whole population when the development of abilities is hampered.

The necessity to perform low qualified work does not imply

the necessity to resignate of qualifications. Nowak (1979) found that persons with a high level of education performed well, also in low qualified functions. Moreover, in contrast to less qualified workers, they introduced various improvements. It follows that elevation of the educational level of workers may contribute to accelerated technical development, improved work methods, etc., that it may make work easier, more effective, and attractive. The principles of remuneration might be adapted to supply and demand on the labour market.

3.3. Maximum development of abilities for everyone.

In the present study it is assumed that equality must be expressed in the creation of conditions for maximum development of abilities for all people. Discrimination by way of blocked access to education for part of the population would be excluded by such equality.

Education is seen as a form of social life, as an activity that gives people pleasure and a feeling of self-esteem. It would be the most justified, to open the ways to education for everyone and to treat pupils and students as working, i.e. to give them similar obligations and rights as those who are employed. Participants would be obliged to complete the given course at time and with good results. In turn, they would have the opportunity of co-operating with other students and they would obtain a wage (or bursary *à fonds perdu*) that would be sufficient to provide for the livelihood of themselves and their dependent relatives, and for the cost of study. Remuneration would have to be somewhat higher for those who are more successful in education than for other participants. Most countries with a sufficiently large net national income would be in the position to give their inhabitants such privilege.

In this conception aspirations and the own choice of an individual are seen as the basis for equality. Broad scientific activity surpassing the boarderlines of existing specialisations is assumed to be the best stimulation for the development of abilities (Suchodolski 1967, 1970; Markiewicz 1980a). It would be a loss when research could only be done by a small group of specialists. When investigations are not repeated and thus tested by independent students, their scientific value may occur

to be modest (Markiewicz 1968, 1980b; Bargel, Markiewicz & Peisert 1982). The remuneration of those who are learning might be dependent on supply and demand of the given type of activity. Studies in fields which are especially useful for social development at a given time, could be stimulated (Bargel, Markiewicz & Peisert 1982; Framhein, Markiewicz & Peisert 1982).

It is to be expected that there are more opportunities of obtaining success in education in economically highly developed countries, where all the inhabitants can meet their basic needs, than in countries where even basic needs can not be supplied.

Equal access to education and the creation of similar learning conditions for all pupils and students would offer persons from less privileged social groups no more than a chance to compete for educational success with others from privileged groups. It is to be expected that the latter obtain these successes, because they have better conditions to develop their abilities in earlier stages of life. The situation of less privileged groups might be improved if they were admitted to higher levels of education without entrance examination. Selection could then follow after a probationary period.

3.4. The use of school-competitions.

It is assumed in this study that the chances of success in education are the greater, the earlier the training in the attainment of this success. Persons from privileged groups often have such training in circles of family and friends. Persons from less privileged groups, however, need primarily to be stimulated to such success outside of their family, and in this respect school plays an important role.

3.4.1. Training and stimulation.

Competitions in various disciplines, whether within a school or at an international level, are assumed to be an important form of training for further educational success. For participants from less privileged social groups, the contest may be the first contact with high expectations in the given discipline and with techniques to transmit their knowledge.

It is expected that organization of competitions for pupils from a larger number of schools, offers the pupils more

possibilities of evaluating their level of knowledge, their other attainments or shortcomings which decided on their scores at the competition. Well organized contests may be an important form of stimulation to further education for the participants, as well as an indication for the didactical work of the teacher.

3.4.2. The chance of breaking limitations.

Competitions give many pupils an opportunity of surpassing limitations of their knowledge resulting from circumstances in their family, school, or locality that hinder their intellectual development. Competitions are an attempt to surpass the decisive influence of a pupil's home and school circumstances on a future career. Many important decisions on a pupil's future are mostly taken by the parents and the teachers. The competition gives the pupil a chance of broadening his choice by means of his own contribution and with the backing of specialists in the field in which he wishes to develop his abilities.

It may be added that Poland is one of a few countries where this method to stimulate the pupils' intellectual development is already applied in the phase of primary education. In many other countries such contests exist only for pupils in secondary education. In capitalist countries competitions for school-children are the domain of broadcasting. Later the appliance for a job has the character of a contest. At school, examinations and tests are widespread.

3.4.3. Verification of knowledge.

Methods to verify the pupils' knowledge are often decisive for their further school career. Examinations and tests may demonstrate a pupil's shortcomings in learning as compared with other pupils from the same school. They offer the pupils however no chance of comparing themselves with pupils from other schools or from another social background and learning from attainments or failures of those others. For such comparisons information about the results obtained by others is needed. This information is rarely available in the case of tests or examinations, because access to the results is limited to teachers, school administration, and the given pupil and his parents.

The opportunity of comparing themselves with other pupils may stimulate children for learning. This might especially

be the case for pupils who fall behind. A frequent cause of stagnation in the intellectual development is a lack of information on the standards of perfection and sources of knowledge. A well organised competition offers its participants and spectators an opportunity of gathering such information.

3.4.4. Flexibility.

In contrast to examinations and tests, competitions prepare for ever new requirements arising from changes of school, place of residence, or job.

4. Research problem.

In the present study an attempt will be made to answer the question which socio-pedagogical and socio-psychological factors have a stronger effect upon the attainment of outstanding success in education and which of such factors have a minor influence. The chances of success in education of persons from social groups which are less privileged in respect to their social, cultural-educational and economic position will be a matter of special interest. It is assumed that failures in the development of abilities are a great social loss, and that unequal chances in this respect of inhabitants of various social background are often a source of conflict hampering development.

The research problem of the present study is illustrated by an investigation among 4,995 participants at the final, i.e. provincial, stage of the competitions in Polish language and mathematics, organized for pupils of the highest grades of primary school in Poland in 1976/77. Information was obtained from the finalists themselves, 1,989 teachers and 93 organizers. This research project included further a pilot study among 372 half-finalists and an investigation among 354 finalists and their 9,100 class-mates in secondary education.

II. THE CONCEPT SUCCESS

This chapter is an explanation of the concept success, with special regard to success in education. The empirical part of this study investigates success at competitions in school subjects: a form of outstanding success in education. Success at these competitions is also a clear example of social success. Therefore social aspects of success are discussed in more detail.

The definition of success used in this study is: the greatest attainments of an individual (or group) compared to similar attainments of others (persons or groups) under given social-historical circumstances, and which attainments improve the social position of the given individual (or group).

The question which attainments or successes are greater is discussed and finally brief remarks are made on some notions related to the concept success.

1. Success in education.

By success in education is meant the attainment of such values as: a high level of knowledge, high levels of schooling, high school-marks, excellent results on tests (of intelligence, abilities, knowledge), the highest scores at competitions, very good testimonies and distinctions for learning, which nobody else or only a few persons in the same grade, of similar age, intelligence, socio-occupational background (farmers, manual workers, scientific specialists, etc.), local background (town, village, level of urbanisation or industrialisation) can obtain, and which attainment give benefits of a psychic and social kind.

It follows from this definition that success in education includes a wide variety of attainments. Each form of social attainment differs, albeit in the degree of its objectivization. A high mark obtained in one school may be obtained for a level of knowledge, skill, or behaviour that is quite different from the level for which the same mark is obtained in another school. Similarly the doctor's degree does not indicate equality or uniformity of the level of knowledge of those who obtained it: there are marked differences in this respect, not only between the various fields of science, but also within each discipline.

1.1. Outstanding success in education.

Success in education is assumed to be greater:

- 1) The higher the personal valuation or the broader the social acceptance of the given attainment. Success in education may lead to increased possibilities of choosing a school, higher grants, etc.
- 2) The less persons obtained such high results, such as the given educational level, high scores at tests, competitions, examinations.
- 3) The more hindrances had to be overcome on the way to success, the less able the pupil, the less his knowledge, the worse the conditions for study at home, the more difficult access to educational and other cultural institutions, the more difficulties to obtain the necessary material means to study, the less qualified teachers, the less help was obtained from the parents and the family.
- 4) The more profits it brings to the given person or society; when by the given success or attainment the situation of the individual or society improves, with regard to health, economy, culture, etc.; when it increases their (educational, political, or other) prestige.

Outstanding success in education is great personal or social success. As such it is always relative. It is primarily relevant here and now and for the given individual or social group. Its value may vanish or diminish over time, but perhaps it gains significance.

1.2. Attainments and success in education.

A high personal or social valuation of an attainment is a necessary, though insufficient condition for this attainment to be a success. For a lowly talented pupil who always had low marks at school, it is an achievement to get a high mark. The same mark is for a talented pupil only a normal event: both in his own view as in that of his teacher, parents, and friends it is but one of the high marks he is used to have. Distinctions and rewards, awarded for outstanding attainments that require great effort, are also for the most talented so exceptional that all criteria are met to denote this attainment as a success.

Although there may be differences between groups of judges with regard to the criteria for the valuation of a given attainment, each valuation by specialists in the field, made according to a fixed procedure, is considered to be a proof of the value of that attainment. Official procedures for the valuation of achievements are usual to avoid tendential judgments at leaving examinations and for scientific titles to be conferred. Bias is still possible when the procedures are not followed, but the discussion of such anomalies is beyond the scope of this study.

The present study discusses success at competitions in school subjects for pupils in primary education. The strivings for success at these competitions can facilitate the achievement of high marks at school and prepare participants for further successes in education: a victory at olympics (similar contests for pupils in secondary education), graduation at a university. It is assumed that success at the competitions also may lead to success in occupational, voluntary, and political activity and even in private life. Further research would be needed to prove whether these assumptions are correct. Success at the contests is a form of social success, the theme of the following section of this chapter.

2. Social success.

The following considerations are to clarify social aspects of success. The issue of success as a highly individual, psychological phenomenon will therefore not be considered.

2.1. Major characteristics of social success.

The specific trait of social success is its objectivization by others. Social success refers to the relation between individual attainments and their social acceptance, expressed in the form of rewards to the individual for the given attainment. Social success is not only the satisfaction of internal needs, of individual impulses, but also the satisfaction of social expectations and the attainment of the rewards society assigns for it.

Success is assumed to be greater when it is appraised by

and brings profit to more persons, social groups or their representatives. When someone is appraised for success in education by the educational authorities, his success is greater than when it is only approved of by the family.

Not every attainment will be considered a success, but only such that is one of the greatest of its kind in the given period, and the aim of which is dominant among valued goals (Parsons 1951: 423).

Another important trait of social success is a feeling of victory, because others did not detect the importance of the given goal or ignored to strive for its attainment.

Talcott Parsons (1951: 423) wrote:

"Ego can and does measure his achievement by intrinsic standards without reference to the achievement of an alter, but if many are striving for the same goals, it is inevitable that in some sense they should be judged as doing better or worse by the same standards, ego that is should excel alter or vice versa."

Internal, individual standards are assumed to be an outcome of the internalization of general standards. The striving for an achievement is done in a context of social relations. Social valuations are the basis of all evaluations and they motivate the individual, reinforce the striving for success.

2.2. Social and historical context.

A given attainment may be named a success within the context of its concrete historical, socio-cultural, and economic situation. Under changing circumstances, new successes are obtained. The old ones then have a historical value, but this is not to say that they are no longer a success.

Although electric engines are in use by the railways of many countries in the twentieth century, the construction of a steam locomotive by Stephenson still is generally considered to be a great invention. It brought a transition in technical development. Many other discoveries and inventions were made on its base.

A success may also be acknowledged but in a future area. The poems of Norwid, for instance, were not appreciated during his life, but after his death they were counted to the masterpieces of Polish national art. The attainments of an author are often not appreciated in the one society, but accepted with enthusiasm in other social systems (e.g. the work of Miłosz).

Agnoli (1969: 1005-1006) wrote:

"Success depends on the type of socio-economic and ideologic

relations, in which certain attainments are acknowledged to be a success and others not. What in an agrarian society may be seen as a success may be renounced in an industrial society. The scope of an aspired success and the limits of individual strivings may change in the course of history."

A success generally is valued within the context of concrete socio-historical and economical conditions, and within the context of the life-situation of the one who is successful.

M. Skłodowska-Curie's discovery of radium and polonium was to her a greater success than the detection of the next radio-active elements. A discovery is seen as a success for somebody when he makes such a great attainment for the first time, independently from others.

Although ever new worldrecords are set up in various fields of sport, the former records are still considered to be a success.

2.3. Lasting success.

A distinction can be made between more and less lasting successes. A success is considered to be longer lasting, when it outlasts varying historical conditions, when a position obtained thanks to that success protects against long term defeat. Schools, for example, may be distinguished with regard to the chances they offer of admission into higher levels of schooling, and of more attractive occupations. Gymnasiums and lyceums are usually considered to offer the best chances in this respect. Lower-level vocational schools and other lower level schools with limited possibilities for further education are reckoned to the group of schools that offer less chances (Kozakiewicz 1973; Nakielska-Cremers 1985).

Similarly, a victory at the school-competitions might be a lasting success when it facilitated admittance into a school for the elite, gave more possibilities for further attainments. It was a short-term attainment when the winner got no profits that would be fruitful in the future.

An occupation counted to the longer lasting ones is that of a scientist. Less lasting successes would be obtained in political occupations (Reykowski 1974, 1977).

2.4. Rewards.

Some authors state that success must be connected with an increase in popularity, prestige, wealth, and authority (Agnoli

1969). These authors would deny an attainment to be a success if it fails to bring such profits at the same time.

This standpoint is not adopted here. A pupil who attained the final of the school-competition, or even won it, but who got no prize or gain in authority, still is considered to have had a success, because he at least gained in prestige.

Graduation at a university is a form of success in education, but even graduates may not obtain a job in a period of economic crisis. In many Western countries such unemployed graduates may live in worse material circumstances, than those who did not complete their school training (Cremers & IJzerman 1985). In Eastern countries, earnings of university graduates may well be lower than those of workers who completed lower level vocational education (Cremers 1980). Nevertheless in almost each social system the prestige of persons with completed higher education is higher than that of others (Ultee 1985; Dronkers 1985). Another example might be the author of an article in a Western scientific periodical, who rises from obscurity but obtains no financial reward or gain in authority.

Many of the economic elite have a rather low educational level and prestige (Muszyński 1976; Beekenkamp & Dronkers 1984; Stokman 1986).

3. Great success.

Parsons (1951: 244) was prepared to state that the gain of a maximal amount of money is the greatest success. He wrote:

Means-objects inevitably acquire symbolic significance, and the quantifiability of money as a possession means that money lends itself peculiarly to the symbolization of prestige. Since it is useful, in one sense its possession is inevitably a reward as well as being a facility for the attainment of other rewards. Hence money, income, or wealth, i.e., resources convertible into or measurable in money terms, are, in an economy with a high development of monetary exchange, an important reward symbol. As such profit may be a measure of otherwise valued achievement acquisition, or it may be a direct goal of success-striving, so that other forms of achievement content become instrumental to monetary gain."

As Parsons remarked, his view on money as the measure of success only in some socio-political systems proves correct. In many other systems for instance party-membership, occupational and moral values may be more important than monetary wealth.

According to Lipset and Bendix (1964) it is seen as the greatest success to find oneself in the most privileged social group. This standpoint is not always confirmed, especially in cases of creativity. Many scientists and artists belonged to the lowest social groups during their life. An example is Vincent van Gogh whose work is appreciated by many generations. In contrast to him those who formed the financial elite in his time are forgotten. If a trait of the greatest successes is their durability, then economical and sociable success often would not deserve that name.

Other authors state that high productivity is the main value of success, not the ability to surpass barriers on the way to success (Agnoli 1969). This seems to be a controversial standpoint. The ability to break through barriers is often seen as the basis for the achievement of high results. Achieving society would be a society which members are capable to overcome difficulties, demonstrate their own abilities, obtain ever more, not only material goods, but also non-material values. When a society is directed to high productivity only in the sphere of material goods, it would occur after some time that these goods hamper further success. Subordination of action in favour of high productivity sometimes may be a threat to it.

A producer who develops a certain production department, but economizes on research for alternative ways of production, may loose the share on the market and even go bankrupt.

A student who limits his activities to work in the library, may not get acquainted with possible promoters and therefore make few use of his knowledge.

Someone who provides research and works it out, but has no possibility to publish the report, is not familiar with the exigations of an editor and awakes jealousy among colleagues, is considered unsuccessful, although the work itself is productive.

A participant in a school-competition who masters a maximum of knowledge of the subject of the contest may be seen as highly productive. However that knowledge alone is not a sufficient condition to obtain a high score on the competition. Besides knowledge a participant needs also the capacity to transmit it in speech and writings, and must have means to pay the cost of travel and stay for the competitions.

It follows that multiple abilities are needed for success, and also favourable socio-economical and cultural circumstances.

3.1. The relation between attainment and effort.

Opinions disagree on the relation between success and the effort to obtain it. In the "Handwörterbuch der Sozialwissenschaften" (Tübingen / Göttingen 1961) success is denoted as the difference between the effort to achieve a given end and the value of the obtained result. Success would then be the difference between the value of the outcome and the expenses to obtain it.

It seems more justified to state that success is the sum of the value of the attainment and the expenses to obtain that result. When the same score is obtained at a competition in literature by a blind child and a seeing one, the success obtained by the blind child is much greater than that of the other participant. This can be stated because the blind usually have much more difficulty to get access to knowledge than seeing people. Similarly the same results in education obtained by the child of a professor and by a child of a blue-collar worker may be a greater success for the latter. The worker's child may have difficult access to sources of knowledge, advice, and help by competent others. The professor's child, in contrast, may often find the literature needed ready at home, and can easier obtain advice and help with the study within the own family and from friends.

Therefore a success is considered greater when more effort was made to obtain it, and inversely: a success is said to be smaller when less had to be invested for its obtainment.

4. Some related notions.

Differences in the opinions on success may often result from identification of this notion with other close notions, e.g. happiness, career, and advancement. These notions will be briefly discussed here. The various differences between the notions of success, happiness, good luck, advancement, and advancement stipulated here are not the only ones. A precise description and interpretation of these differences may be the subject for a separate study.

4.1. Happiness and good luck.

Happiness is satisfaction with life as a whole. Success may concern but one sphere of life. When a person or group has success in other spheres of life, the chance increases that in a given field success is also obtained. Happiness and good luck depend on a favourable coincidence of circumstances, on fortune. Success is mostly obtained gradually, as a result of conscious, goal-directed action. The outcome of a lucky coincidence of circumstances can often not be repeated, this in contrast to a successful result, that usually can be obtained again (Tatarkiewicz 1962).

4.2. Career and advancement.

A success may be obtained in various spheres of life. A career or advancement can be made in institutionalised spheres only.

Success consists in doing better than others, in attaining something that could not be achieved by others. Career and advancement are open to more persons when they succeed to obtain the same goal. A career can be made by fast movements on the way to a given end, often skipping over preceding levels (Gołębiowski 1975). Successes are obtained gradually, step by step.

III. SUCCESS AND ABILITIES

In order to obtain success in a given sphere of life, appropriate abilities are needed. What are abilities and what are their determinants? An attempt to answer these questions will be offered in the present chapter.

After a tentative definition of ability, some remarks are made on the relationship between abilities and personality and on the way abilities manifest themselves. The question whether abilities are inborn or acquired evoked hot discussions among social scientists with regard to limits on the effectiveness of education. Various approaches to answer this question are discussed. The social extent of abilities is another important theme with regard to the potential of education. This question is discussed with special concern for the extent of mental abilities and giftedness. The relationship between age and ability is discussed with regard to the question at what age various abilities can best be developed. The influence of the school on the discovery and development of abilities is discussed on the basis of various studies which resulted in opposite conclusions.

The final section of this chapter discusses relations between social background, abilities, and success in education on the basis of various investigations. The elements of the social background to be considered in this section are: the parents' educational level, their occupational level, family structure, and the place of residence. The hypotheses about the relation between local background and family background, and the chances of success at the school competitions, which are investigated in the empirical part, have been derived from the studies presented in this section.

1. The concept of 'abilities'.

Whereas the notion 'success' refers to a certain result of action and in retrospective to the way to obtain that outcome, abilities refer to the result of action, of actual action, and to results of potential future action. Familiar definitions of abilities may be distinguished according to the implied

relationships between abilities and personality, and according to the degree in which the social context is taken into account.

1.1. A tentative definition.

Ability is a potential for obtaining good results in one or more types of activity. This potential may be more or less developed or not (yet) be manifest.

A person with an absolute ear for music living in a family where music is not appreciated may have no way to demonstrate his ability (or: talent). Thus his ability remains only potential. It is possible that such a person happens to get access to an instrument or to someone with knowledge of music. In that case his ability becomes manifest.

Full development of abilities requires regular training, under favourable conditions, guided by a specialist with pedagogical skill. Favourable conditions for the development of abilities refer to a complex of pedagogical, social, and psychological factors that stimulate someone to develop his abilities. Even the greatest talents may remain undeveloped when interpersonal relations rely on punishment and egoism. Abilities grow under rewarding circumstances when there is understanding and empathy.

2. Abilities and personality.

Which spheres of personality have to do with abilities? Authors frequently stress the connection of abilities and personality but do not specify their view on this theme:

- "Abilities are such traits of personality .." (Smirnov et al. 1966: 441);
- "Various manifestations from the side of personality ..." (Rubinsztejn 1940: 536);
- "A structure of rather constant, but also changing individual characteristics of personality, different for the subsequent abilities. There is and cannot be a general psychologic structure of abilities, as there cannot be an ability for x actions" (Piatonov 1972).

Often the connection of abilities with the nervous system is stressed. In such cases it is stated that abilities:

- "are certain properties of the nervous system, or are created in the course of experiences of the functional organism" (Reykowski 1973).

- "are a set of organic factors and the psychic properties that are functionally connected with them" (Gerstmann 1969: 169).

Also in this case most authors do not specify their opinion:

- "Ability is an outcome of the work of the brain" (Kabanis 1805: 153);
- "Abilities are individual - psychological characteristics" (Tieplow 1961: 10);
- "Abilities are a system of internal dispositions" (Szewczuk 1966);
- "Ability is receptivity" (Pomykało 1972);
- "Ability is the ease of gathering and processing information" (Gondzik 1972).

3. Manifestations of ability.

With regard to this theme there are various approaches. Velocity and efficiency in the performance of an activity are mostly stressed (Tieplow 1961; Gerstmann 1969; Płatonow 1972). Less frequent attention is drawn to such traits as effectiveness (Smirnow 1966; Gondzik 1972), the quality of the performance (Tieplow 1961), ease and harmony of action (Pomykało 1972), creativity, radicality, and nonconformity of action (Husén 1970).

3.1. A typology of abilities and their manifestations.

In literature on this subject numerous abilities are mentioned. One of the most complete, general classifications is included in a study by Płatonow (1972: 93-95). This author distinguishes abilities according to the following criteria.

With regard to the role abilities play in human life:

- fundamental abilities which cannot be compensated (e.g. respiration, secretion, progenitive ability, etc.);
- complementary abilities which can be replaced by other ones, e.g. the ability to see or hear;
- compensatory abilities which emerge after the loss of some complementary ability, such as the tactile ability, that often is developed after the loss of eyesight, and by which braille may be read.

With regard to the period of their appearance:

- potential abilities that did not yet become manifest;
- manifest abilities (which can be divided in those that are still present and those that are already extinct).

With regard to their social extent:

- abilities which everybody has, although not equally much: feelings, imagination, elementary memory;
- special vocational abilities, occurring in certain groups;
- specific, individual, rarely occurring abilities; so-called super-abilities like a superb memory, extraordinary physical endurance, creative abilities.

With regard to their degree of complexity:

- common elementary abilities: imagination, elementary memory, judgement, etc.;
- elementary abilities which are specific to some persons: kindness, courage, etc.;
- common complex abilities, such as the ability to work, learn, speak;
- specific complex abilities, e.g. special verbal proficiency, manual skill, a special ear for music.

Platonow states that abilities have a dialectical character.

This would be expressed in:

- the dependance of the quality of abilities on the number and quality of the concrete elements that make part of them and the relations between these;
- the variety of personality depending on the number of actions the given individual is able to perform;
- the possibility of compensation, i.e. the reduction of certain elements in favour of other ones;
- the development of abilities by way of training: together with increased training the quality of elementary and complex abilities is improved.

It has been remarked at the beginning of this chapter that there are many abilities that are not manifest. Other abilities are manifest but undeveloped. Only a minor part of those who have the potential to obtain good results in one or more fields of activity have the opportunity of developing these abilities to a maximum.

3.2. Factual and measured abilities.

A distinction must be made between factual abilities (whether manifest or not) and measured ones. Only the abilities of very few people are documented from psychological tests and countries differ in the degree to which confidence is given to test-results.

Although it is no more than a test of knowledge and skill at a certain moment, based on the mental condition of an individual at that time, the popular IQ is often given the power

of judging a person's intellectual ability. In order to avoid linguistic difficulties in the assessment of abilities, many psychologists use non-verbal tests (e.g. Raven's test). These are said to be culturally neutral, but in fact depend strongly on means and methods of teaching and education as these are adopted in the given culture. It is to be expected that when children are trained from their early childhood to lay out puzzles in given or determined patterns, but the development of abstract thinking and co-operation is neglected, better results are obtained in the development of the ability to perceive details than to conceive relationships and dependencies between phenomena.

Manifest abilities represent an individual's level of development. Only some of these are measured and evaluated by others. So far, the known measures of ability may happen to be distorted by imperfection of the instruments or by subjectivity of the observer. Such limitations of the evaluation must be overcome for abilities to be developed and used. It may sometimes be better for the career of able persons to avoid tests, examinations, or competitions than to submit themselves to an unreiterated, poorly provided investigation.

4. Abilities: inborn or acquired?

Most authors note that abilities depend both on inborn traits and on the conditions of life. The strength of the influence of each of these factors is estimated differently.

4.1. Indications of abilities mainly to be inborn.

Especially the older estimations stress the innateness of abilities and largely neglect the influence of the environment.

- Leibnitz (1955) wrote that innate abilities differ from acquired ones in the same way as marble statues differ from ones made of sandstone. Whereas the former survive for centuries, the latter crumble after some time.
- In one of the first comprehensive studies of abilities it was stated that in each person one ability dominated the others. Nature would not allow man to practice two arts, two sciences at the same time. If everybody did what he was most able to do

this would be the most favourable to society (Yarte 1957).

- In another study the human mind was compared to the blood-vascular system, in which both inherited and acquired traits could be detected. The will, character, etc. would be inborn traits. Aspirations and the ability to solve problems would be acquired, in contrast (Beneke 1834, 1871: 33-44).

In later works on this theme a distinction was made in the dynamics of the development of abilities: the beginning of their appearance, the intensity of their manifestation, and their further development. The two former would depend on inborn gifts, the latter one would depend on the environment. Potential abilities might become actual ones in the course of actions in which these abilities could develop (Platonow 1972: 93, 146). It also has been stated that from the very beginning of psychic life a typical order occurs, independent on experience. When somebody sees things totally new to him he does neither know their names, nor the way to use them, but is able to detect them against a background immediately. The perception would not consist of the association of elements, but of filling in a shape, a certain framework, a scheme. The 'Gestalt'-psychologists saw big differences between people with regard to the quality of the order of psychic life.

4.1.1. Darwinism.

An important influence on the development of opinions on abilities had Ch.R. Darwin (1859). He documented, among other things, that:

- the offspring is always somewhat different from its parents, and some differences also occur between siblings;
- individuals who adapt better to changing conditions of life live longer and contribute more to the survival of the species;
- variations of adaptation that are favourable for the species are inherited;
- certain unfavourable traits of the parents need not be inherited: these may be avoided.

H. Spencer (1855) developed Darwin's theory in psychology. He stated that as psychic functions differentiate, the experiences of whole generations consolidate in the form of instincts. He denied the existence of inborn ideas (see Descartes) and assumed

a readiness in personal life for the search of knowledge in a particular direction. He supposed wisdom to be learned, not inherited.

4.1.2. Temperament, physical condition, and abilities.

The statement that abilities are inherited was often proved on differences in temperament. On the basis of observations of babies it was stated that there are considerable differences in the kind, strength, and intensity of reactions on particular stimuli (Radiszczew 1941).

Differences in temperament not always cover differences in intelligence. Kretschmer (1934) distinguished two psychological types on the basis of the shape of the body (a schizotomic type as the counterpart of an athletic figure, and a cyclotomic type as the counterpart of a pyknic type). He stated, however, that high intelligence can occur equally among cyclotomics as among schizotomics. In art creative cyclotomics would tend to be realists, in science they would prefer natural sciences or other disciplines handling concrete facts. Creative schizotomics, in contrast, would tend to be formalists in art and theorists - rather than observers - in science.

It was assumed that certain traits of temperament occur more frequently in one social environment than in another. The proportion of melancholics (persons with a weak nervous system), for instance, would be larger among the rural population than among urban people. This statement has been contested by research by Strelau (1965) and Lewowicki (1977: 174), who found a larger proportion of persons with a strong nervous system in their sample of rural children than in a corresponding sample of urban children.

Some authors saw a relation between achievements and the physical constitution. Adler (1948) supposed that persons with (real or imaginary) physical defects try to invert or hush up these shortcomings (by means of appropriate clothes or by a surgical operation). When such measures do not help they would try to compensate the shortcomings by means of excellent performance in other fields: sport, science, art. Man would strive for esteem by others. When a person cannot gain the same esteem as those to whom he compares himself, he might get an

inferiority complex. This, in turn, might be the cause of awaking typical instinctly energy, an anxiety to force.

4.2. The development of abilities.

Many authors assume that the abilities of everyone can be developed by appropriate education.

"The intellectual similarities of people are larger than the physical similarities. Each person has a chance of attaining the ends he sets himself. There is no intellectual ability that might not be increased by appropriate training" (Bacon 1954).

"No inborn talent is so excellent and even more extraordinary that the light of learning and formation could not join it" (Modrzewski 1971).

Some authors even believed in the omnipotence of education.

"One can teach everyone everything" (Komeński - Comenius - 1965).

"The human mind is a tabula rasa, to be filled by experience" (Locke 1959).

"Education can do everything; everyone with a normal, average organism have equal abilities. The cause of intellectual variety is in differentiated education" (Helvetius 1772).

4.2.1. Development and environment.

Although there was a belief in the potential of education, there was also pessimism with regard to the chances for persons from an unfavourable social background of obtaining a sufficiently high educational level. Among these pessimists were the 'behaviorists'. In their view behaviour is not regulated by internal factors, and conscious control of one's faith is a 'group-illusion'. It is the environment that controls one's faith. Human behaviour on its turn influences the environment. Whereas the environment is an active system, man is a reactive creature (Skinner 1978: 205, 206).

The influence of the environment on the development of abilities has been noticed, not only during a human's life, but upon whole generations.

"Abilities constitute on the basis of inborn talent, shaped in the course of history, in activities to meet needs. Man's activity depends on the availability of certain abilities. In material production man forms his abilities at the same time" (Rubinsztejn 1962: 206).

"The relation of man to the material world depends on human activity. The formation of abilities is a process in which an individual transforms historically shaped human abilities and functions" (Leontiev 1947).

4.2.2. The differentiation of abilities.

The influence of environment upon the development of abilities, was very stressed by Marx, Engels, Lenin, and many of their continuators (e.g. Gak 1967: 177; Kon 1967: 34). These authors pointed to the differentiation of abilities among humans.

"Equality of strength and ability cannot be found in a socialist society. People differ by inborn ability, therefore they perform differently" (Lenin 1980, Vol. 24: 364).

"As there is no identical pair of fingers of different persons, there are and cannot be two identical persons, equal in their abilities and possibilities for development" (Marx 1979).

They assumed that the differences between humans are smaller than those among other creatures.

"Nature gave many races of animals different traits and predispositions, although they belong to the same kind. These differences are more apparent than those among uneducated people. From nature the difference between a philosopher and a porter - with regard to their talent and intelligence - is not even half as big as the difference between a mongrel and a greyhound, a greyhound and a pointer, a pointer and a sheep dog" (Marx 1979: 161).

They believed in the existence of talents among the socially underprivileged mass and in the possibility to develop these talents.

"There is a lot of organisatory talent among the population, i.e. among workers and farmers who do not exploit hired labour. Capitalism choked and ejected thousands of them; we are not yet able to detect them, to teach them, to set them on their feet, to elevate them" (Lenin 1981, Vol. 36: 193).

They assumed that development of human abilities, especially in the field of fine art, not necessarily implies a transition to more valuable forms. Antique art was given as an example:

"The difficulty, however, is not to understand that Greek art and epos are connected with certain forms of social development. The problem is that they still give us artistic delight and to some extent still serve as a norm and as a unique example" (Marx 1979: 548).

The division of labour and the corresponding class-position were seen by these authors as the major cause of the differentiation of abilities. They stated that differences in this respect are especially great between the class of capital owners and the working class.

"Whether an individual like Rafael develops his talent entirely depends on the state of the division of labour, on one's life conditions (...). A sorrowful person, harassed by needs is insusceptible even to the most splendid works of art" (Marx 1979: 135, 608).

They stated that money, as the general legal tender, deepens the inequality of chances to develop abilities.

"Money - as the external, neither from man as a man nor from human society as a society originating, general means and capacity to transform the imagination into reality and reality into no more than an imagination, similarly changes the real human and natural essential capacities into no more than abstract imaginations, hence imperfections, painful illusions, like it transforms the in reality powerless, only in an individual's imagination existing, essential capacities into real capacities. (...) If I have a vocation to study but no money to do so, I do not have a vocation to study, i.e. no effective, true vocation. In contrast, if I do not have a real vocation to study but have the will and the money I have an effective vocation to do so" (Marx 1968: 566).

4.3. Empirical studies.

Attempts to answer the question to what extent abilities are inborn or acquired have been tried in various ways.

4.3.1. Experiments.

Experimental research on the heridity of traits is mostly done on animals, because similar investigations on man would be in conflict with the ethics protecting human rights.

A famous investigation on this matter is an experiment on the heridity of spatial orientation among rats, grouped according to the investigated criterion. The rats had to find their way out of a maze. This was done 20 times with each rat. On the basis of the results the rats were divided into two groups: one of 'intelligent' rats and a group of unintelligent ones. These groups were held in separate caves. Similar tests were done with their offspring. It was found that it was not until the seventh generation that clear differences occurred in the 'intelligence' of the rats. Those from the 'intelligent' group made seven times less mistakes than those from the other group (Tryon 1940).

It follows from this experiment that inheritance of negative traits needs not occur in closely following generations. Only when several generations live in unfavourable conditions with regard to a given aspect, later generations inherit that trait. The results of this investigation also demonstrate another limitation of experimental research on this issue. A similar experiment on man would last a century or two.

4.3.2. Genealogies.

A frequently used argument for the inheritance of abilities are the genealogies of famous persons. It is referred to the

offspring of Johann Sebastian Bach, 18 of whom were also musicians. Already in 1869 Galton described 300 persons of world fame and stated that they all came from families in which similar abilities could be found in several generations. Winners of the yearly Chopin-festival come from families with a clear tradition in music (Maturzewska 1969).

Terman (1925) found that the parents of the talented belonged to the leading groups in society. The parents of most persons in his sample were professionals, renowned authors, scientists, artists, and high civil servants, the President of the United States included.

Girard (1971) investigated a sample of 20,000 persons of outstanding ability, who he selected from a modern biographic vocabulary and from elite universities. He found that about 2/3 originated from privileged social classes which included hardly 1/20 of the active population in France. Less than 1/10 of the sample had a worker or farm background, although these groups included 2/3 of the French population. Those who inherited a position or had an occupation similar to that of their father had the best chance for a rapid career. The persons in the sample mainly came from Paris and other big towns and from elite quarters, rather than from other places of residence.

Much research has been done on the heridity of mental disease. It has been found that 12-14 percent of the children with one schizophrenic parent had similar symptoms. When both parents were schizophrenic this percentage amounted to 31-68 and for monozyotic twins it was 67-86. The normal chance of being schizophrenic would be some 1-2 percent (Kępiński & Susłowska 1969: 11-60; Kępiński 1981: 18-25). It must be asked, however, whether such symptoms of schizophrenia could not be forms of behaviour which the children adopted from their parents in the course of the process of education (Hollingshead & Redlich 1958; Kępiński 1981: 24).

4.3.3. Comparisons of children raised in various conditions.

Descriptions of the socialization of children raised by wild animals are generally known. Examples are the description of the case of a boy found in Hessen about 1540 (Komeński - Comenius - 1956) and of a girl found in the Paraguayan jungle in 1956 (Pieron 1959: 211-229). These children adopted traits of

the animals they lived with, and it was only after a long time of formation and education, that they attained the level of their peers. Some of these children never developed certain human abilities at all.

Many investigators tried to assess the strength of the influence of inherited and environmental factors on abilities by means of multivariate analysis of large samples. Shuttleworth (cited by Hornowski 1978: 39) stated that heridity would explain 64% of the variance of abilities, environmental factors would count for 16%, differences in educational methods would explain 3%, and 17% would be due to a mixture of heriditive and environmental factors. Other research led to contrary proportions. Pieter (1948) found a correlation between intelligence and environment of .82. Others estimated the influence of non-hereditary factors on ability at about 75-85% (Burt 1965).

In many investigations the IQ and the cultural level of children was compared with those of either their natural or adoptive parents. The correlation of a child's IQ with that of his own mother would be twice as strong as in the case of an adoptive mother. The difference in the correlations would for fathers be a factor 7, in favour of the natural fathers. There were however wide differences between the coefficients obtained in the course of various investigations (Hilgard 1962: 635). Such differences might also be explained by the time of establishment of the emotional bondages between the children and their natural or adoptive parents.

Investigations on twins or siblings who were raised either in the same or in different families have been very fruitful for the assessment of inheritance of abilities and of the influence of the educational environment. The correlation coefficient of the intelligence of twins raised in the same family amounted to .88 and that of twins raised in different environments to .75. The corresponding correlation coefficient for normal siblings was about .5; it was higher when the siblings were raised together and lower in the case of separate education (Zazzo 1960; Hauser & Featherman 1977; Behrman et al. 1980).

4.3.4. Educational experiments.

Attempts have been made to estimate the influence of systematic teaching on the development of abilities. In the

state of Louisiana (USA) 16,000 negro children from neglected educational environments were given an appropriate pedagogical treatment. This led to the expected result: a big progress in the intellectual development of these children. Moreover several other special abilities became manifest (Stefanowić 1967).

Fowler (1967) showed that intellectually gifted children had better conditions for development at home than other children. Among other things they had better material conditions, the family preferred cultural values, they had selected teachers with outstanding teaching skill who applied suited teaching methods and were able to get in direct contact with their pupils. These children regularly - even daily - attended private lessons and in their education there was an emphasis on the mastery of symbols, especially the use of these in expression.

5. The social extent of abilities.

Many studies demonstrated that human abilities are normally distributed, i.e. with a frequency distribution of the bell shape according to Gauss. It is assumed that in each fairly large population the able and very able are a small minority, as are the unintelligent. It has been argued that the relatively largest part of the population (33.9%) has an IQ between 96 and 105. The further the IQ deviates from this mode, whether upwards or downwards, its frequency diminishes (Terman 1925).

5.1. The proportion of the gifted in the population.

Whereas there is a consensus about the general tendency in the distribution of abilities, the opinions about its extremes vary widely. Especially wide dissent can be noted with regard to the question which persons to denote as gifted and how many of the able there are. Davis (1940), for example, described those with an IQ over 106 as gifted (and counted 3.7% of the population to this group). Skinner (1971) in contrast said those with an IQ over 130 to be gifted (4.4% of the population).

Similar difficulties with the comparison of research were due to different terminology, class-width, and methodology. The following examples may illustrate this problem.

Terman and Merrill (1937) classified pupils according to the Stanford-Binet scale. They distinguished: 21% able children (IQ between 106 and 116), 11% very able children (IQ between 117 and 127), and .4% exceptionally able and geniuses (with an IQ of 128 and over).

Other authors came to much larger numbers of gifted pupils. When speaking about highly talented children, French (1973) had some 11% of the population in mind. He estimated the proportion of those with more than average abilities (i.e. an IQ of 115 and over) at some 15-20% of the population. Furthermore he stated, that all those who are capable to complete higher education may be counted to the gifted.

Steinhauss (1960) argued that some 25% of the pupils have potential abilities for attainments in mathematics. Dubrowina (1971) demonstrated that 80% of the pupils do clearly better in the one field of study than in other subjects.

5.2. Latent abilities.

A different approach to the question of the social extent of abilities is the assumption that everyone not only has the manifest and eventual potential abilities, which are more or less measured by tests, but also important latent abilities. A quite sensational opinion on this matter is that of Fessard and Einstein (cited by Gauguelin 1963: 184; Panek 1977: 23, and Hornowski 1978: 225) who estimated that average educated persons only use some 10% of their cerebral cells, hence 90% would be not in use. Czernigowski (1964, 1971) estimated the used part even smaller.

Were these estimations true and could use of the brain be extended, humanity would have the disposal of huge natural resources in the form of human abilities.

5.3. Under achievers.

The detection and use of abilities form a big problem. Researchers demonstrated that many able pupils were to be found among those who fail at school.

- Tyszkowa (1964: 268) wrote that almost 50% of the pupils with a delay in learning had an IQ over 90, i.e. a level she

- assumed to be sufficient for obtaining good results at school.
- Spionek (1975: 115) found 7% pupils with an IQ over 110 (on the Stanford-Binet scale) among those with severe ill-success in learning.
 - Wasyluk-Kuś (1971: 42) found 8% pupils who scored 160 and over on an intelligence test (Terman-Merill) among those who did bad at school.
 - Panek (1977: 151) estimated that there were almost 5% able pupils among those who did bad at school.
- Other authors made similar observations.

5.4. Changes in the social extent of abilities.

Some selected findings on changes in the extent of abilities in subsequent historical periods will be presented here.

The average score on the Alpha-test obtained by American soldiers during the Second World War was 42 points higher than that during the First World War: 104 and 62 points respectively. This big increase of intelligence has been explained as a result of prolonged education of the soldiers (with an average of two years), better quality of that education, and a significant improvement of the conditions of life of the population in the meantime (Tuddenham 1948).

Similar observations have been made in Poland among youth before and after World War II. The intelligence level of 14 year old post-war children corresponded with the level of 16 year old pre-war children. The investigation concerned verbal logical thinking measured by the Odis test on a sample of 1,000 pupils (Sikora 1968). The period covered by that investigation was also in Poland marked by dissemination of primary education and its prolongation by 2 years and later 3 and 4 years. The conditions of life of the population improved too. These changes may have had an influence on the difference in intelligence level.

Research among (a sample of 48,000) German youth during the 1930s led to quite contrary results. Whereas there were 17.8% exceptionally able among them in 1932, this proportion had fallen to 7.3 percent in 1937 (Müller 1947). The author of that investigation assumed that the Hitler regime caused this

deterioration, because its indoctrination of the youth smothered their ability of critical thinking. A decline of IQ has also been noted by Burt (1946: 55) who stated that the average IQ of the English population in the period 1919-1939 decreased about one point, but that the proportion of the talented diminished by some 15 percent.

It may be concluded from these findings that the proportion of the gifted changes, depending on the social-economical and cultural situation of a country. In certain periods of history the proportion of the gifted increases, in other periods it diminishes. This observation would be an interesting subject for further research.

6. Age and ability.

Some remarks will be made in this section on the age at which renowned persons had their first success. Since success in education includes more than successful counting, reading, or writing, besides successes of renowned philosophers, scientists, and authors, attention will be given to successes of painters, musicians, etc.

Some kinds of abilities, especially in the field of music, dance or sport, but also linguistics and mathematics, need to be developed already in early childhood (Mönks 1988a, 1988b). The development of other abilities, e.g. pedagogical, political, or scientific abilities, depends on knowledge and experience. This might be a reason why there is more chance that a musician or actor at later age becomes a great author, politician, leader (in Poland: Paderewski, Wojtyła; in the USA: Reagan), than that a talented author who never learned to play an instrument becomes a great violist at later age.

It is assumed that high ability is a predisposition to high attainment in one and sometimes in many fields. The question whether this predisposition is developed and whether in the given field(s) success is obtained depends on manifold factors. The empirical part of this study will discuss determinants of success at competitions in school subjects among pupils in Polish primary education.

6.1. Socialization.

The development of special abilities requires, besides knowledge and skill at a high level, the culture of highly privileged groups, the culture of those who have the means for the development of abilities in the given community at their disposal, hence their norms, values, and habits (Bourdieu 1977). Acculturation or socialization is facilitated by an early start of learning in that culture. Unfortunately in the lower levels of many school systems pupils are prepared for low qualified jobs and inculcated with the culture of the less privileged and dual behaviour: contempt towards those who are weaker, subservience towards superiors. In primary school, for example, pupils may be taught to use complimentary phrases which already on the level of grammar school are not in use.

6.2. Educational policy.

The age at which various abilities can be developed depends on many factors. Among these the educational and cultural policy might be one of the most important. On the one hand there are countries where already in primary education children are given the opportunity of developing their abilities in special schools, free of charge. On the other hand there are countries where public schools for pupils with special abilities in fields like linguistics, mathematics, or fine art do not exist, even in secondary education. In the latter countries the development of special abilities is a matter of private, often commercial, organisations (Mönks 1988b). As a consequence, economically privileged pupils have better access to such forms of education.

It is often stated that less privileged children are not prepared to develop their abilities; that they prefer to strive for material achievements. It must be remarked, however, that a person's needs include both an objective element and the subjective evaluation of the situation. It is difficult for less privileged children to aspire to study at university, when they are aware that their family will not be capable of helping them, whether materially or by good advice, and when there are no others who might help them in their new circumstances. In many countries there are facilities to overcome hindrances of a

material kind on the way to education of various abilities, but there are often only a few who have information about such possibilities.

Gifted persons from less privileged social groups need the help of mentors from more privileged groups. It is important, of course, that the family of an able child has a positive attitude towards the child's efforts, but it must be remembered that less privileged families, besides understanding, can hardly give substantive support to the development of the child's abilities. When no appropriate circumstances are created abilities do not even become manifest. For the development of abilities among the culturally less privileged it is necessary that there are sensible persons among the more privileged who are prepared to guide this development.

6.3. The optimal age of learning.

Relatively many researchers have noted that ability already in the earliest childhood may come to light when the child is given suitable conditions. Bloom (1964) found that it is too late to form abilities when a child goes to school, because intellectual differentiation has taken place for the largest part at that time. Piaget (1966) stated that we have to form perceptive schemes at the right time, for efficient mental development. Other authors (e.g. Bruner 1961) noted that mental activity is of the same kind in the studies of scholars, as it is in the third grade of primary school. Accordingly it would be possible for each pupil at each age to get acquainted with the principles of every subject in an appropriate way.

Pietrasiński has a critical view on the possibility of postponing the development of abilities at school:

"Traditional school conceives the dilemma between assimilation and creation in such a way, as if it were possible to postpone creative action of individuals for several years, so that first the results of the creativity of generations can be mastered. It is not too much to say that the years of one-sided perception do irreversible harm to a normal mind" Pietrasiński (1978: 35).

Many other authors adhere to this thesis. They assume that pupils whose development of abilities is only started by the end of secondary school have minimal chances for the appearance of outstanding ability. The optimal period for the development of

abilities would be primary school age (Praca z młodzieżą zdolną 1974: 23).

Problems were observed with the formation of intelligent eye-perception among persons who became able to see thanks to an operation of the cataract. Similar problems occurred among apes raised in darkness (Hebb 1949).

A significant part of the gifted children investigated by Terman (1925) gave signs of mental ability already before school age. These children distinguished themselves from their peers by an insatiable thirst for knowledge, a good memory, a rich vocabulary, and an understanding of complex problems. Moreover these children liked to count, used atlases and encyclopaedias. Twenty percent of these children were able to read at an age of five, 6% when they were four, and 1.6% could read when they were three.

Similar observations were made by Bandura (1974: 29). Among the 50 gifted children in his investigation 15 could read and count to hundred before school age. One child could read before it was five. The parents stated that these children learned reading and counting of their own, spontaneously, sometimes even against the parents' will.

Płatonow (1972: 125) described observations of a teacher who noticed the appearance of penmanship among three generations of women from the same family when they were about five years of age. These abilities vanished however in adolescence at an age of about 14.

6.4. The first signs of the abilities of renowned persons.

Analyses of the lives of great creators led to the conclusion that a large number of them demonstrated very early their abilities (Pressey 1955; Fowler 1967; Płatonow 1972: 135-139; Hornowski 1978: 224).

Musical talents were relatively the earliest to appear:

- N.A. Rimski-Korsakov distinguished himself by a good musical memory when he was two years old;
- W.A. Mozart practised music when he was three years old. He played the cembalo at an age of four; when he was five he thought out his first melodies; eight years old he composed a sonata and a symphony; when he was eleven he wrote an opera, and at the age of fourteen he became a member of the Philharmonic society at Bologna;

- J. Haydn distinguished himself by a musical memory when he was four;
- F. Mendelsohn-Bartholdi showed such a memory when he was five;
- F. Chopin well performed melodies on the piano when he was six, and a year later he started to compose himself;
- S.S. Prokofiev began to compose when he was eight, F. Schubert when he was eleven, C.M. von Weber when he was twelve, and L. Cherubini began to compose at the age of thirteen.

Painter's and sculptor's abilities appeared also very early:

I.E. Repin and W.A. Sierov showed their abilities when they were three; El Greco when he was eight; A. van Dijk at ten years of age, and Michelangelo Buonarotti at thirteen.

Among the poets A.S. Puszkin began to write poems at the age of eight.

Some scholars also showed early abilities:

- F. Galton read by himself when he was three;
- At the same age J.S. Mill learned himself Greek;
- M. Faraday constructed a model of an electric machine at his eighteenth;
- K. Gauss began his scientific activity when he was fourteen.

6.5. The pace of the development of abilities.

Some psychologists stated that the effects of learning increase rapidly till an age of 25 years. In the next phase of life there is a stabilisation. From about 35 years onward the effects of learning tend to diminish and this tendency becomes manifest by the age of 40 years (Thorndike 1950).

Budohowska and Włodarski (1977: 118-122) confirmed this observation. They stated however that the efficiency of various mental functions increases until a certain age. The scope of direct memory, for instance, widens till about 15; the velocity of learning increases to an age of about 20 years; the intensity of productive activity till an age of about 40. These ages were in line with the periods of activity at school and at work, in which the mentioned traits might be stimulated more intensively than other ones.

Terman and Oden noted a decrease in the ability level among the talented they investigated each 6 years (Jersild 1947: 557). Hudden and Lytton (1971: 136-154) found a regress in the development of abilities in secondary education, compared with the development in primary school.

It must be asked whether this regress was the result of a

natural, biological weakening of mental processes, or was caused by specific conditions of the persons under investigation, e.g.: a strict, administering way of teaching in secondary school, in contrast to rather exploring teaching methods in primary school; diversion of the respondents' interest towards achievements in other fields of life, such as family, friends, job; worsening of their material conditions, or the necessity to combine learning with a paid job.

Research by Grzywak-Kaczyńska (1935: 78) provided some evidence for the hypothesis of changed conditions. She stated that there were no talented children in a sample of 908 pupils in the highest grades of primary school. The reason for this absence might have been that the highest grades were only attended by those pupils (aged 14-15 years) who did not intend to continue education. The level of education in such grades was not always on a high level. Those pupils who had the material and intellectual possibilities of continuing education left primary education already in the fourth to sixth grade to attend secondary education.

Many authors assume that early formation of abilities may turn out to be ineffective (Reykowski 1973). This risk would be significant when one ability is formed at the expense of the others. This might make the development of abilities in other important spheres of life impossible. Indirectly it might also have a negative influence on the already manifest abilities. To avoid this risk the development of penmanship and abilities in the field of music, theatre, etc. plays an important role in the secondary schools for science attached to the universities in the Soviet Union (Litierat 1972; Nakielska 1978).

6.6. Later manifestations of ability.

Some authors argue that abilities equally well may appear at later age. Such a late manifestation of ability might be more fruitful in the one field of life than in others.

As a proof for this hypothesis reference was made to the age at which some painters and authors started their production:

- M.A. Wrobel began to paint when he was twenty;
- V. van Gogh started to paint at an age of 27 years;
- J.A. Krylov started to write famous fairy-tales at his fortieth;

- S.T. Aksakov's splendid stories were written after his fiftieth;
- E. Kant began to publish his work when he was 57.

An analysis of the beginning and ending of the productivity of a sample of 511 scientists, philosophers, and artists showed that the normal age to begin creative productivity was about 21-30 years and the normal end at about 51-60. The proportion of those who began before their tenth was .3% and that of those who started after their fiftieth was .6% (Szewczuk 1959).

Among the elderly, aged 60-97, some 15% had abilities which became manifest only after their sixtieth (Aleksjejevitz cited by Piatonov 1972: 135). Possibly their conditions of life prevented earlier appearance. The chance for the development of these abilities might arise when reverses of a material, cultural, social, or health kind have been overcome.

6.7. Assessment of the time of manifestation of abilities.

A precise assessment of the age at which abilities come to light is hampered by the methods of research. Investigations on this matter are mostly retrospective and rely on utterances of laymen who may differently value ability and do not always remember and interpret historical facts alike. On the one hand there are parents who preserve early work of their children, e.g. paintings, writings, musical and technical work. On the other there are parents who have no interest in such collections. Research on early manifestations of ability is in need of more reliable methods.

It is to be expected that early detection of abilities offers more opportunities for their development than later detection, simply because more years are left to develop them. It is in the interest of society to care for the early detection and development of abilities. This is of course not to say that the development of abilities that come to light at a later age should be neglected.

7. Schooling and ability.

This section discusses the chances to discover and develop abilities in school. Some research findings on this issue, from different educational systems and different historical periods,

are presented here. It is supposed that among less privileged social groups talent may be lost in educational systems where strict selections are made and higher levels of education are expensive.

The influence of teaching methods seems equally relevant. Methods that rely mainly on memory might hardly develop abstract thinking and creative ability. It must be remarked that most schools develop their pupils' imitative, analytical abilities: the ability to remember and reproduce knowledge, to copy drawings, to compose pieces, or to construct according to a given model. Similarly many tests investigate analytical skill. Creative, synthetic abilities, including artistic talent, are relatively rarely developed in most schools. It can even be that a school restricts those abilities among the pupils that had been awoken by the family, e.g. precocious arithmetic, reading and writing, penmanship, constructive abilities, sport.

7.1. The basis for school recruitment.

It has already been mentioned that the school may be an important place for the development of abilities, especially for pupils with an unfavourable social background. Research findings show, however, that they are underrepresented in schools of higher educational level and in schools offering the best chances of school success.

Barnet & Pelnard (1962) found that among the primary school leavers who did not intend to continue education in secondary schools geared towards university, between $1/3$ and $1/2$ had a level of intelligence equal to that of those who were admitted to such schools, and $1/4$ of them had a level of intelligence higher than that of those who were admitted. Similarly Burt (1965: 55) noted that in the higher grades of secondary school 10% of the pupils was highly intelligent. Nevertheless only one third of them started an academic study. Comparable observations were made by Spitz (1959). This author administered a series of tests, including Raven's progressive matrix, to a sample of persons representative of the whole Dutch youth. He stated that, whereas only 3.9% of the males attended university, 8.5% - i.e. more than twice of them - could have graduated, given their

abilities.

In England during the 1940s it was found that outside the universities there was a large percentage of youth who were academically able to graduate, whereas there were many students at the universities whose intelligence level was too low to complete their studies successfully (Intelligence 1947: 67). At the examination of recruits for the Swedish army (N=40,000) it was found that 10% of those with no more than primary education, would have been able to graduate. Among the recruits from big towns such diagnosis was made for almost one in five (de Wolff & Härngvist 1962).

Besides these authors, there are also those who are rather pessimistic about the possibilities of improvement of the chances of success in education, and are against a broadening of the basis for school recruitment. Lipset & Bendix (1964) stated that the basis for recruitment to college should not be enlarged too quickly, because the pool of abilities would be exhausted and mediocrity would enter college, lowering the level. Furneaux (1961) found that among the pupils admitted to secondary school 53% had abilities to complete it at an O-level (i.e. exactly as many as obtained that level in effect). If the entrance examination requirements were lowered, fewer pupils would have a chance of completing this form of education successfully. Among those who failed the entrance examination to grammar school (conducting the most youth to university), only 3% would have had sufficient ability to meet the requirements of this school-type.

Van Heek (1976: 151) came to similar conclusions. He stated that the Dutch schools for secondary and higher education were completed in fact by exactly as many students as would have been able to complete these schools. When part of the children who did not continue education would have had similar or higher abilities than those who continued, successful completion of a school would not only depend on ability, but also on a complex of other factors, especially on the parents' mentality. It may be added that Kohn (1969) found that the parents' mentality hinders the school-career the most, when a school-fee must be paid (as it was the case in the Netherlands) and when there are no appropriate forms of support (both material and mental) for children from an unfavourable economical or cultural background.

7.2. Conclusions.

When the capacity to study is considered as a synthesis of certain skill and the opinion of the parents (van Heek et al. 1976), other results are obtained than when only the level of certain knowledge and skill is investigated (by use of some test of intelligence). The capacity to study is rarely subject of scientific (especially sociological) research. Nevertheless only such investigations provide a basis for the prediction of a pupil's school career.

The main cause of the wide variety of estimations of the intellectual capacities of pupils is the differences in the tests applied (and other research techniques) and particularly differences between abilities as measured by these tests, and abilities and conditions needed for the successful completion of studies.

It follows from the studies of the authors cited here and others, that pessimism about the broadening of the basis for recruitment of schools resulted more from a lack of support for pupils and students, than from a belief in the limitations of the human intellectual potential.

8. Social background, abilities, and success.

Even the oldest sources of science (Aristotle, Plato) share the opinion that social background determines the individual's behaviour and the possibilities for development. Four important elements of social background are discussed in this section. First, attention is given to the parents' level of education, which might be particularly relevant for a child's chances of success in education. Next, the parents' occupational level is considered, which is the most often used indicator of social background in literature. The third element is the structure of the family: the number of children and birth-order. Finally the relevance of the place of residence is discussed.

8.1. The parents' educational level.

Various investigations demonstrate a relationship between the parents' educational level and the childrens' educational

success (Coleman 1966; Kozakiewicz 1975).

In research on gifted pupils parents with higher education were clearly overrepresented (in comparison with the educational level of the whole population). Terman (1925) found that the parents of talented children had a higher education than the parents of their peers. Bandura (1974: 26) noted that the higher the educational level of the parents, the higher the children scored on intelligence tests. This relationship was as follows:

- the children of parents with higher education scored an IQ from 117 to 138, with a mean of 126;
- the children of parents with secondary education scored from 120 to 148, mean 126;
- the children whose parents completed primary education scored from 112 to 127, mean 118, and
- children whose parents did not complete primary education scored an average IQ of 114.

Among hundred talented pupils in the region of Katowice (Poland) there was only one child whose parents did not complete primary education (Gondzik 1976: 89). Similarly among talented pupils from the Warsaw-region there were few children of parents with a low educational level (Borzym 1979: 61). The proportion of these pupils both of whose parents were university graduates was 7.7%; the share of pupils with at least one parent who completed secondary education was 30%; the rest of the sample (54.4%) consisted of pupils with one parent who completed higher education.

Somewhat smaller disproportions in the share of children of parents with primary education were found in a sample of gifted pupils investigated by Panek (1977: 211). Among the finalists of school competitions held in Warsaw the relationship with the parents' educational level was even insignificant (Słyszowa 1978: 211). The latter findings might be due to a small sample size and an overrepresentation of children of parents with higher education in the sample.

Meijnen (1977: 194) investigated pupils of grades 1-3 in primary education. He found a strong correlation between intellectual development and traits of the family environment. The more favourable the conditions for the education of the children in the family (expressed by the parents' educational level, value system, pedagogical methods, and cultural level), the higher the test scores.

8.2. The parents' occupational level.

The investigations by Coleman (1968) and Kozakiewicz (1975) are well known analyses of schooling and its social conditions. This research was mainly done by analysing census data. The investigations showed a strong dependency of school careers, among other things, on the pupils' socio-occupational background. Another important investigation on this matter was the analysis of the school-careers of pupils who completed primary school in 1976 in the Netherlands (Collaris & Kropman 1978) which led to the same conclusion.

Similar longitudinal research has been done by Kwieciński (1973) among 7,709 primary school leavers in two Polish regions. Also this author found that the higher the parents' occupational level, the better the scores on tests of school knowledge. The average score on these tests of farmers' children was half as high as the average score of the children of white collar workers who also lived in the countryside. A strong relation between the test scores and socio-occupational background was found among children immediately before and in the first grades of primary school.

Peschar (1975) investigated a sample of pupils matched with regard to their IQ and socio-occupational background. He found that those from privileged social groups obtained higher levels of education than those of equal IQ but originating from less privileged social groups. This investigation demonstrated that the chances of achievements in education are not primarily determined by the initial level of intelligence, but by the pupils' social background. Research by Wilgocka Okoń (1972: 142) showed a positive relation between socio-occupational background and the scores on a test of school ripeness. Whereas the average score of the children of employees amounted to 35.4, the mean score of farmer's children was 27.9 (N=1,072). From an analysis of data from a large sample (N = 21,116) of pupils at the end of primary education (SMVO-cohort) Guldemon and Meijnen (1985: 173) also found a positive relationship between the proportion of pupils who scored high on the TIB test of intelligence and the parents' socio-occupational status.

8.2.1. Socio-occupational background of gifted pupils.

One of the earliest big research projects on the relation between intelligence and the parents' occupational level has been the investigation by Terman (1925). He found that the largest group of those with an IQ of 140 and over was formed by the children of intellectuals (33.3%). The next largest group were the children of managers (32.4%). Blue-collar workers' children, in contrast, were the least represented (0.9%).

Similar observations have been made by Hildreth (1966: 103) in a Californian research project of 1957. He noted that 40% of the pupils with an IQ over 140 were children of professionals and managers, 48% of these pupils belonged to the middle-class, and only 2% had a lower-class background.

In a sample of talented rural pupils (N=218) the proportion of employees' children (23%) was three times larger than the share of employees (8%) in that population (Nakielska 1975). The share of farmers' children in the sample was 44%, which was less than the proportion of farmers in the population (60%).

Among pupils who had been selected with regard to their high level of intellectual development was a large proportion of children from highly privileged families and a very small group from lowly privileged families. This sample of gifted pupils from Warsaw consisted for 76% of children of employees and 16% were worker's children (Borzym 1979: 60).

8.2.2. Socio-occupational background and school achievements.

Spitz (1959) wrote that, if completion of an academic study is considered to be a way of using ability, representatives of the higher strata would make use of the whole pool of abilities, lower strata would use half of it, and the lowest strata somewhat over 1/8.

Research among pupils admitted to lyceum in France in 1962 (N=20,000) showed that pupils from higher strata who had a good or very good level of knowledge and intelligence, were all admitted, whereas only 80% of such pupils from a worker or farm background were admitted. It must be remarked that among the pupils who did poorly at the tests one in three from the higher strata got admitted and only 3-5% among the workers' or farmers' children (Barnet & Pelnard 1962).

Students from less privileged social groups obtained higher average marks at universities than those with a favourable social background. Nevertheless among those with the highest marks the former were less represented (Sulek 1973: 94).

8.2.3. Socio-occupational background and school competitions.

Bialecki (1975: 71) found that among the winners of secondary school competitions in mathematics during 1949-1970 8.6% were farmers' children and 12.5% workers' children. These proportions were much more favourable in the first decade under investigation than in later years. The data presented by Bialecki were probably biased in favour of the children from less privileged social groups. The author obtained information on less than half of the winners. Among others, those who moved to another place of residence, emigrated, were on a vocational practice, etc. were not included in the research. It is to be expected that those from privileged social groups were more mobile, geographically and occupationally. Farmers' children, in contrast, could mostly be contacted easily via their parents because farmers rarely moved and usually kept in contact with their children. Especially the findings with concern to the proportion of farmers' children among the prize winners of the secondary school competitions might have been biased. The data on the winners in 1971/72, who were then investigated, provided some evidence for this assumption. The proportion of farmers' children among these winners was no more than 1.6% and that of workers' children 8.1 percent. It must be stressed that in the given year there were 26% farmers and 49% workers in the whole population of Poland. It follows that among the winners the disproportions from these social groups were enormous (Bialecki 1975: 110, table 13).

As has been mentioned already, research by Słyszowa (1978) did not confirm a relationship between the parents' educational level and the pupils' success at the competitions. This author investigated participants in competitions in Warsaw schools with a highly privileged social background. It can be seen here that this background might have influenced the relationships in her research.

8.2.4. Conclusions.

Investigations such as these shake the ideology of an equal start (Tryfan 1974), which is based on the conviction that it is sufficient to give everybody equal opportunity at the entrance of a school of a given type, but that what happens after this equal start would be a private matter. There seems to be more reason to postulate equal chances in the long run, rather than equal chances at the start.

A limitation of the influence of the family on education would lead to increased educational chances of children from less privileged social groups, but it might limit the chances of those from more privileged groups. Such a limitation of the parents' influence on their childrens' school career would be easier with regard to material conditions than with regard to value systems. It is to be expected that, although some children can resist a negative attitude to education in the family, the majority is affected by such pressures. Subjection is more probable when the family environment is more homogenous with regard to education (because of a lack of examples of those who succeeded in obtaining a high level of education) and when the family lives in a closed local community.

Such hypotheses might be tested in further research.

8.3. The structure of the family.

The opportunity for parents to invest time and energy in their childrens' education is more readily given when there are less children in the family. Relations between siblings may play an important role in a child's development. When there are more children in the family there could be more occasion to learn co-operation, the roles of superior or subordinate, concentrated activity in the presence of others, and - first and foremost - for the development of conceptual thought, conversation, and the exchange of opinions. There might be many such opportunities in families characterised by rationality, where all members have equal rights and can express their thoughts freely. In families characterised by stable authority, absolute obedience, and the obstruction of any initiative or discussion such an opportunity might hardly exist.

8.3.1. Oldest and youngest children.

The oldest and the youngest child in a family might be in an extremely favourable position for education. Research shows that these two categories of children, and especially the eldest children, have better chances of success in education than other siblings (Zajonc & Markus 1976: 85).

Older children often have a leading position with regard to the other children in the family. When these oldest children are taken seriously by adult family members they may have adults as partners in conversation and this favours their entry into the adult world, makes them independent and stimulates abstract thinking. However in families where children are not taken seriously, where children are excluded from adult life, the situation of oldest children might be less favourable. In such cases the oldest child tends to build friendships with the younger siblings. This may slow down the pace of development and lead to his development being approximated to the level of the younger children.

Youngest children are often in the position of favourite in the family. Both parents and siblings tend to invest much time in contacts with these children. Youngest children may benefit from the experience the parents obtained in educating the older siblings. Usually these children have no lack of toys and clothing, which they take over from their older sisters and brothers. Youngest children have always older partners to play with and talk to, who are usually more developed intellectually. This may speed up their development considerably. A negative aspect of the position of youngest children may be frequent subordination as a result of a lower level of knowledge and a lack of experience. This might hamper the development of leading abilities and similar skills.

8.3.2. Age intervals.

Another element of the family structure relevant to the chances of educational success is the difference in age between subsequent children. It is assumed that longer periods between the birth of successive children are favourable for their development. This may be expected for several reasons.

A considerably older child requires less care and contacts with the parents than a child only slightly different in age.

When an older child is still small at the birth of the next child the former may get less attention from its parents than he actually needs. This, among other things, might lead to disturbances of the emotional and intellectual development of the older child, and might slow down the development of various other functions. When there are relatively small distances in the birth-order of the children, the distinction between the roles of older and younger children in the family may become unclear. A child only slightly younger may be able to quickly reach the older child in many functions. This may frustrate the older child and lead to a lowering of the aspirations of the younger one. Dangers of these kinds may well be avoided by longer gaps between the birth of siblings.

8.3.3. Birth-order.

Hurlock (1961: 528) stated that there is a gradual increase of IQ with growing birth-order, at least until the eighth child. An exception to this rule were geniuses, who were more frequent among oldest children than among those of higher birth-order. Similar conclusions were drawn by Bandura (1974) and Borzym (1979: 64).

Panek (1977) also noted that gifted children were usually first or second children in the family. In contrast to the previously mentioned authors, Panek observed a decrease in the chances of success in education with growing family-size. Single children were overrepresented among the talented.

8.3.4. Birth-order and socio-occupational background.

Similar conclusions were drawn by Marjoribanks (1979) from an analysis of data on recruits for the Dutch army (N=40,000). Moreover he found that family-size had a different influence on the level of intelligence in families of various social status.

- In the families of employees the level of intelligence increased in favour of the younger children, up to the fourth child, after which IQ of the later born children fell markedly.
- In workers' families the intelligence level of the children was found to be inversely proportionate to family-size, i.e. the smaller the family, the higher the level of intelligence of the children.

- In farmers' families there was no clear relationship between the number of children and their level of intelligence.

The findings from this investigation may be explained by various factors. One of the the major factors might be the family's material and cultural conditions. Families with many children are often less wealthy and the cultural level tends to be less favourable for intellectual development. Age differences between the subsequent children might be rather small. From the previous arguments it is to be expected that this has an unfavourable impact on the family's material and educational opportunities. Smaller families might have better conditions for the education of the children.

It must be remarked that this investigation was done in the Netherlands, a country where a significant part of middle-class women held no paid job but were well prepared to keep house and to educate their children. When raising the first three children these women became increasingly experienced in their role as mother and housewife. A further increase of the number of children might lead to a greater increase of the work-load than could be compensated by gains in proficiency.

The absence of a relation between the number of children and their intelligence level in farmers' families might firstly be explained by the relatively small proportion of farmers in the population and, secondly, by the specific situation of the members in a farmers' family. From research by Kwieciński (1978) it may be concluded that every child in a farmers' family has a task in the household or on the farm, appropriate to his capacities. Manual and constructive abilities are developed more than verbal ability and penmanship in such families. This is probably the reason why Marjoribanks could not demonstrate a relationship between the number of siblings in these families and the childrens' level of intelligence, as it was measured by the typical skills of the middle-class. Further research on this theme would be needed to prove these hypotheses.

8.4. Place of residence.

The place of residence is a determinant of the opportunity of getting access to various cultural goods and of gaining manifold experiences. It is to be expected that someone who

lives in a place with many cultural and educational institutions of high quality (schools, theatres, libraries, etc.) has more opportunities of making use of these than someone who lives in a place without such facilities or with such institutions that have a poor equipment or weak organisation.

The place of residence might also determine the chances of success in education by way of the socio-occupational structure of the population. It is to be expected that these chances are fairly small when the large majority of the population consists of poorly educated manual workers (e.g. labourers, farmers, fishermen), where no example can be taken by persons with a high educational level representing a variety of professions. Pupils living in such places lack models to follow and the stimulation to learn.

8.4.1. Local background and scores on tests of intelligence.

Lewowicki (1977: 178) noted marked differences between the level of intelligence of pupils from Warsaw and the IQ of those from the Warsaw region but living out of town. The difference was 4.8 IQ-points among the fifth-grade pupils and 9.9 points in the eighth grade.

Big differences between the test scores of urban and rural youth were also noticed by Wilgocka-Okon (1972: 64). In contrast to the findings of Lewowicki, this author found the differences diminishing with increasing age of the pupils. The average score on the test on school ripeness she held differed 8.6 points between rural and urban children in the age of 5 years and 9 to 11 months. The difference among older children (aged 7 years and 6 to 8 months) was 4.0 points.

Kwieciński (1970a, 1970b) found that test-results of urban girls were much better than the scores of rural girls. The scores of boys from these types of localities on these tests of knowledge did not differ significantly.

Research in Western countries also showed that urban pupils had a higher level of intelligence than rural children (Gal 1957, cited by Kozakiewicz 1973: 119 ff.; Pieron 1959). De Wolff and Härngvist (1962) noted that among 40,000 recruits for the Swedish army who had no more than primary education 17% of those living in towns and 4% of those living in the countryside would have been able to complete university education.

8.4.2. The local background of gifted pupils.

The IQ of rural children in a sample of talented pupils investigated by Bandura (1974: 24) ranged between 120 and 122. The average IQ of urban youth in this sample was 130.

Among the talented children investigated by Panek (1977: 198) there were many more who lived in Białystok, the capital of the voivodship, than those who lived in smaller towns in the region.

8.4.3. Local background and school achievements.

Big differences between the schooling of urban and rural pupils in Poland are evident from the analysis of census data. The proportion of rural pupils diminishes with increasing educational level of the various school-types (Kozakiewicz 1973, 1975; Szymański 1973, 1978). This indicates that towns reserve their schools for the own inhabitants. Tryfan (1974: 239) wrote:

"Whereas in 1971 the Warsaw secondary schools had a surplus of 6,853 places over the number of primary school leavers in the town, there was a deficit of 15,777 places for the Warsaw voivodship as a whole. When it is remembered that part of the pupils were admitted to schools in the capital which were unique, there was nevertheless a lack of 9,000 places for pupils living out of the capital."

The disparities at universities were larger. Kozakiewicz (1973: 103) showed that in the five big university towns in Poland (i.e. Warsaw, Łódź, Kraków, Poznań, and Wrocław), between 92 and 97% of the students came from the university town itself. In the smaller seats of scientific institutions one fifth to one half of the places were open to students living out of these centres.

The necessity to increase the proportion of rural youth at universities is stressed by research findings. Wiśniewski (1969) and Woskowski (1963) found that rural students obtained better results at the university than urban students. This difference became very clear in later years of the course. However among those who graduated with distinction rural students were less represented.

Dutch research on school attainments (Meesters et al. 1983) showed a positive relationship between the level of urbanisation of the place of residence and the chance of becoming one of the best pupils. This relationship was highly significant in the 1950s but less strong at the end of the 1970s. Santema (1974:

159) found that more urban youth than pupils of rural background gave up grammar school in 1962. This might be an effect of stringent selection of rural youth at the admission to these schools. As a result these schools were probably attended by the most able rural children, whereas the ability of the pupils with urban background was far more differentiated.

A secondary analysis of intelligence tests and research on the school-career of children who attended primary schools in Groningen in the 1960s showed that those who attended schools in the residential quarters attained much higher levels of education than pupils of schools in workers' districts (Dronkers et al. 1985). An explanation for this finding might be the functional level of schools in each of these environments. The different material and cultural situation of the pupils in these schools, which was much more favourable in residential quarters than in worker's districts with regard to the stimulation to learn and the material support to do so, might have had an important influence on these school-careers.

8.4.4. Local background and school competitions.

Białecki (1975: 90) found that the majority of the winners of the secondary school competitions in mathematics during 1949-1969 lived in the capital of the vojvodship - a university town (53.1%). The proportion of those who lived in the country was 14.1 percent. Only 1.6% of the winners lived in a village and travelled to school. By comparison it may be mentioned that in the period under investigation 80-88 percent of the Polish population lived in the country. It follows that rural pupils were very underrepresented among the winners. At the finals of the secondary school competition in mathematics of 1971/72 only 1.6% of the participants had a rural background, but nobody lived in a village when attending secondary school (Białecki 1975: 108-109).

8.4.5. Conclusions.

Great differences were reported between urban and rural pupils with regard to scores on tests, participation in higher levels of education, and the chances of reaching the finals of school competitions. Children from the countryside were always in an unfavourable position. One of the major causes of these

disproportions might be the development of a basis of schools without an appropriate organization of bursaries and boarding facilities. Parents are not always in the position to provide private housing for their child in town. When facilities for bussing are insufficient and the distance to school is too far, it is impossible to travel between home and school.

The findings with concern to the achievements of students from different local background were very similar to those from research on their socio-occupational background (Sulek 1973, see 8.2.2). Students with a less favourable social background (whether with regard to their parents' occupation or the place of residence) did better than others, although they were less represented among those with outstanding success in university. The finding that among those who graduated with distinction there were rather few from a less favourable local background might be accidental, because the group of such graduates is very small. It was however in line with the finding that students from a less favourable socio-occupational background, though doing better than others, were underrepresented among those with the highest marks. This might indicate that some members of the scientific staff of the university hesitated to admit that students from less privileged social groups may be as able as they are themselves. Even in a country so long on its way to socialism as Poland, people still may have difficulty to admit that persons from other social spheres are equal to them, even if that equality is evident.

The fact that students from a less favourable social background did better than students from more privileged social groups indicates that the former had more intellectual ability. This would mean that among the less privileged only the most able were admitted to university, whereas among those from privileged groups there were both talented students and those of average ability.

Students from the countryside did especially well in later years of the course, i.e. when the process of adaptation to the new environment and to the new requirements had come to an end. This is a further indication of difficulties among youth from less privileged social groups with the adaptation to the new environment, to which students from privileged social groups are accustomed already. The opening of the way to university for

youth from socially less privileged social groups, with support during the period of adaptation, would be a means to increase their chances to graduate.

IV. SOCIAL EQUALITY AND SUCCESS

Various ideas, social movements, and legal regulations with concern to social equality will be the subject of this chapter. A solution to the dilemma between social equality and success will be proposed.

In the past only certain social groups were granted equality and thus opportunities of success. During the course of time equality was granted to an increasing number of people and it became an ideal to realise equality of all citizens. However, as a result of false interpretations of equality, it has sometimes been tried to limit the strivings for success, thus impeding the activities of those who were capable of serving society with their talent. Such restrictions could accumulate until they embraced all spheres of life, including those indispensable for social development, e.g. in the field of education.

Success often consists of attaining equality by those who so far have been seen as unequal. Success in at least one sphere of life is a condition for being equal when reverses are suffered in other fields. Success in all spheres of life is a rare phenomenon.

1. Ideas on social equality.

The idea of social equality is propagated by almost all outstanding thinkers, politicians, and social activists. This equality is usually limited to certain social groups, for instance the free citizens of ancient Athens or Rome, those who are in the possession of goods, titles, nobility, etc. In Poland equality in education is directed at the children of the working class and peasantry.

1.1. Ancient Greek ideas on social equality.

In ancient Greece were various forms of equality: that before the law (isonomia), in civil rights (isopoliteia), equality of political support (isocracy), the right of equal votes (isopsefia), equal importance of all people (isotimia), equal freedom of speech and political action (isogoria), equal

share in companies of various kind (isomoiria), equality of wealth and happiness (isodaimonia). These forms of equality were unequally distributed among the various groups in society: citizens, metoians, and slaves.

Aristotle thought it would be just if there was an equality of those of equal status. He thought it possible to avoid struggles resulting from inequality by uniting the stratum of the poor with that of the rich, or by strengthening the middle estates (Aristotle 1964: 114, 228).

Plato proposed the founding of a sort of commonalities in which the individual would be an instrument within the whole. The lowest estate would be the passive material, the live-stock of the state. Equality would have to be brought about by absence of private property among the watchmen and by the raising of children without any relation to the parents (Plato 1958; Witwicki 1947: 36-37). Plato advised only treating as equal those with the same abilities and education. In his view philosophers would have to be in authority. Nevertheless he thought it necessary that everybody would stay in the estate belonged to in his youth.

The Stoics considered people to be equal in relation to nature and law.

1.2. Early Christian thought.

An absolute equality of the whole of mankind was stressed in early Christian thought. Saint Paul stressed the equality of all people, whether men, women, or children, without regard to their social status, in his letters to the Galatians (the Bible: Gal. 3, 28) and the Colossians (3, 11). Saint James denoted discrimination as a sin (the Bible: James 2, 9).

The first Christian philosophers proclaimed that inequality stems from the greed and impudence of the wealthy (Basil the Great, John Chrysostomus, Asterius of Amasei, Tertulian, Lactantius, Ambrose, Jerome, Ruphinus of Aquilei, August, Paul of Tarsus).

Absolute equality for everyone was characteristic for the first Christian commonalities and in communities founded or described by utopians. Because these commonalities functioned in isolation, the equality within the commonality was at the

expense of strengthened discrimination from outside. Examples of such movements might be the groups founded under the initiative of Peter Valdo, based on common ownership, physic work, and strict, early-Christian ethical principles. The Waldensian movement has been excommunicated by pope Lucian III and fought by the crusaders. The groups of the humilates were a form of production commonalities. After a period of persecution by the episcopate this movement has been accepted by the Church. Of the other groups founded in the so-called poor movements, the communities of the Beguines must be mentioned and those of the beggar monks and the apostolic fraternity (a movement of military character).

It has been a long lasting merit of Christianity that it separated social superiority from moral superiority. This brought about two independent hierarchies, with the moral hierarchy more important for the believers than the social one (Plamenatz 1956: 90). Throughout centuries the Church has been one of the few - and even the only - institution that provided persons from less privileged social groups with an opportunity of social advancement. It was an institution that, in a non-revolutionary way, bursted existing social structures, although it urged not to worry about worldly things. This tradition has been broken by the formation of state-churches.

1.3. Conceptions of equality of various other thinkers.

During the Renaissance, democratic ideas were taken over by ever larger social groups. Among the thinkers of that time who propagated egalitarian ideas, A.F. Modrzewski (1963: 194) must be mentioned. He postulated equality for the law and a hierarchy based on merit and talent of the citizens, instead of privileges connected with estate and birth. In Poland equality was extended to the whole nobility, whether poor landed nobility or lords. The peasantry and the townspeople were not given equal rights. Similarly as in the period of serfdom a nobleman had to pay a fine when he killed a peasant, but when he killed a gentleman he was executed. In eighteenth century Poland every nobleman had not only the right of taxation but also the right to come to the Polish throne (Włodarczyk 1977: 75).

Some liberal thinkers expected a society without private

property to be a society of struggle of all against all (Thomas Hobbes). Only private property would be a guarantee of high efficiency, because the owner of the means of production would have a personal interest in their proper use (A. Smith).

Some thinkers were advocates of a life in harmony with nature. Rousseau expected that people who strive for wealth and a so-called easy life can only obtain this at the expense of increased inequality and feelings of threat. Only the return to a life in harmony with nature would protect people from a life in permanent fear, threat, or the feeling of humiliation.

Polish adherents of egalitarian ideas were A. Zamojski, S. Konarski, S. Garczyński, and S. Leszczyński. These thinkers stressed the moral, psychical, economical, and political effects of inequality. They gave examples of countries which had a faster and better development than Poland, thanks to the fact that the citizens were given more equality and wealth was no measure of a person's worth (Leszczyński 1755).

S. Staszic opposed severely against inequality. In his "Admonitions for Poland" he showed the inhuman existence of the peasants. He claimed liberty to choose an occupation or place of residence, uncramped initiatives for persons of all social environments. He assumed that the origin of social evil was the existence of groups that had the exclusive right for land and political rights. He advised the distribution of such privileges according to talent, personal merits, and labour. Nevertheless he was in favour of the protection of private property.

John Stuart Mill and Herbert Spencer were spiritual leaders of nineteenth century liberalism. In their opinion equality must be understood as equality of opportunities for action. Mill considered wellbeing as the aim of that action. Such common action (and authority) would be justified that led to the wellbeing of the individuals. His ideas can be found in the principles of the 'welfare state'.

H. Spencer stated that people have the same right to strive for wellbeing, but not for wellbeing itself as the utilitarians believed. He opposed collective action for the wellbeing of others. As in nature the functioning of the social world would be based on evolutionism. The extreme poverty of the working class was in his opinion a necessary stage of the evolution of society. By destitution society would clear away those persons

unable to compete with others.

E. Durkheim assumed a person's faith was determined by birth and by existence in certain social and moral conditions. He stressed the heredity of various complex abilities, including scientific ability. He assumed that equality is hampered by race, interpreted as a complex of psychophysical traits that differentiates people (Durkheim 1978: 400). He stated that, to a large degree, individual behaviour depends on the moral reality. Man is not guided by the material environment, but by a general consciousness superior to his own. A major part of human existence would transcend the body, escape from its yoke, and submit to the yoke of society (Durkheim 1969: 279). He considered the influence of society on the individual to be so strong that it would be justified to speak of the determination of human activity by society. The fact that people have the most varied occupational skills would not mean that this is their essence, that it testifies human perfection or the lack of it. All this would be taken over from society. An individual's liberty "is but apparent and his personality only borrowed" (Durkheim 1978: 400).

Whereas biological needs may be satisfied rather easily, Durkheim stated, social needs - including educational needs - are capable of putting people permanently forth to activity. He thought that the majority of needs is individualised, although they originate from society (Durkheim 1969: 226-227). He was rather pessimistic on social equality:

"One sort of heredity will always exist, that of natural talent. Intelligence, taste, scientific, artistic, literary or industrial ability, courage and manual dexterity are gifts received by each of us at birth" (Durkheim 1969: 278).

His approach to social inequality was similar to that to natural disasters, from which people may defend themselves but which they cannot eliminate.

"A moral discipline will therefore still be required to make those less favored by nature accept the lesser advantages which they owe to the chance of birth. Shall it be demanded that all have an equal share and that no advantage be given those more useful and deserving? But then there would have to be a discipline far stronger to make these to accept a treatment merely equal to that of the mediocre and incapable" (Durkheim 1969: 278).

At another place he stated however that social inequality might

be eliminated when 'a need for equality' could be rooted in mankind. Such a need would have to be socially determined. Many contemporary scholars elaborate on this opinion (Bell 1970; Berting 1985; IJzerman 1986: 15). Durkheim's doubts about the feasibility of social equality may have been influenced by a limited knowledge of different social milieux, other races, and cultures. Uncritical adoption by some authors of ideas of classics in sociology, including Durkheim (de Jong 1987), may be a hindrance to the development of the social sciences and the building of a better world.

2. Social movements and constitutional equality.

Accumulation of social inequality led to rebellion of the suppressed (revolts of slaves, peasants, civil strife) and to national and international movements (e.g. Zionism, liberalism, communism, solidarity with the underprivileged). The leaders of revolts often propagated egalitarian ideas (e.g. John Wyclif, John Ball, and Wat Tyler during the Wat revolt in England, Jan Hus as leader of the Hussian war in Czechia, and Thomas Münzer during the German farmers' war). The equality of all people has also been propagated by the Arians in Poland and by the Anabaptists.

An important achievement of the French revolution was the proclamation of the Declaration on Human and Civil Rights (1789). The first point of this declaration was:

"People are born and stay free and equal in rights. Social differences may only be caused by differences in social utility".

The sixth article explained moreover:

"The law must be the same for everyone, whether it punishes or rewards. All people, being equal before the law, have the same opportunities for all honours, places and civil ranks according to their abilities, without any other difference, except differences in merits and talents".

The declaration was against the inheritance of privileges. Since it was assumed, however, that privilege must be given for abilities and merits of character, i.e. for traits that are to a large extent dependent on life conditions, the existing social order was indirectly accepted (Benn & Peters 1964: 131-132).

2.1. Constitutional equality.

Some movements led to a considerable improvement of the position of the suppressed, or at least a formal recognition of their rights in a constitution or other form of legislation.

In 1787, for the first time in the history of the Western countries, the equality of all people was included in the American Declaration of Independence, the constitution of the United States. One of its clauses proclaimed:

"Let us take it self-evident, that all people are born equal and that they are endowed by the Creator with certain intransferable rights, among which there are Life, Freedom, and the striving for Happiness".

Poland was the first country in Europe to pass a constitution. Egalitarian postulates have been included in this 'Constitution of the third of May' (1791, reprint 1981: 85). The Polish Jacobins expected that the guarantee of social equality would be the only way to engage the population in the struggle against the invaders who occupied Poland from 1792 till 1918. These mottos were popular during the insurrection headed by Kosciuski and the Lithuanian revolt.

These declarations overcame the formal hindrances that had so far made it impossible for those without privilege to strive for honours. It was acknowledged that one of noble birth need not remain a nobleman, and one born in a peasant's family need not remain a peasant.

Following the example of the United States and Poland, other states included the postulate of equality in their constitution. Moreover in the course of history social equality and measures against discrimination were dealt with in special legislation. Equal rights were given to ever more social groups and on broader spheres of life.

It must be remarked that legal guarantees of equality could not improve the situation of the oppressed at once. Those with money, prestige, and power could defend their interests and long maintain their position, even against the law. Years of struggle were necessary to gain general acceptance of legal rights. The most difficult problem was the changing of attitudes and behaviour towards the previously unequal. The problem of social equality became one of the main elements of national and

international politics. Care for social equality favoured the harmonious development of the state and prevented social crises.

2.2. Socialist and communist movements.

The founders of the International Workingmen's Association expected that the inequality of opportunities of developing abilities, as existed between representatives of various social classes, would diminish when goods were fairly distributed. The fairness of this distribution could not be examined without regard to the relations of production. There could be no justice when the material conditions, especially capital, were owned by a few, instead of by all workers (Marx 1979: 745-746). A communist society would be based on the following principle for the distribution of tasks and goods:

"From each according to his ability, to each according to his needs" (Marx 1979: 745).

These authors stressed the social character both of abilities and needs. In the distribution of goods must be reckoned with many factors, e.g. that one worker is married, the other not, that one has many children, the other few. They expected that equal rights can be obtained at higher stages of social development when the following conditions would be met:

"... after the enslaving subordination of individuals under division of labor, and therewith also the antithesis between mental and physical labor, has vanished; after labor, from a mere means of life, has itself become the prime necessity of life; after the productive forces have also increased with the all-round development of the individual, and all the springs of co-operative wealth flow more abundantly ..." (Marx 1979: 744).

They called for socio-economical change, so that man could feel himself entirely human.

"If man draws all his knowledge, sensation, etc. from the world of the senses and the experience gained in it, the empirical world must be arranged so that in it man experiences and gets used to what is really human and becomes aware of himself as a man" (Marx & Engels 1979: 218).

Marx assumed that many problems related to equality would be solved after the abolition of social classes. In that situation social and political inequality would vanish. This is not to say that all differences could be eliminated: differences in life conditions and natural differences between people, such as gender, age, and the level of psycho-physical development, would

always persist.

Egalitarian principles were strived for during the October Revolution that led to a radical change of the status quo. In order to realise egalitarian ideals Lenin called for the abolition of social class, as well as the elimination of any private ownership of means of production, differences between town and countryside, and the distinction between manual workers and employees (Lenin 1980, vol. 32: 415-416). In his article "The next years of Soviet authority" (1918) Lenin changed his standpoint, under the pressure of concrete problems. In the stages leading to communism he recommended social differentiation and compulsion. In the distribution of goods he advised a differentiation of wages and food, and preferences for key-branches of industry. In the political sphere he recommended the limitation of the peasants' right to vote and advised taking away this right from those who held no paid job.

Many other publications appeared in which the postulates for equality were criticised. Criticism was uttered against the utopian socialists who propagated the principle: 'to everybody the same'. It was stated that genetic and anatomic differences between individuals (among other things: level of intelligence, endurance, temperament, and health) and various social traits (educational and occupational level, capacities of leadership, etc.) do not justify equality in education (Borowicz 1985). It was assumed that people may not be treated equally because they are different. The egalitarian ideas of Marx and Lenin were rejected as well, especially the principle 'from each according to his ability, to each according to his needs'. It was assumed that it is impossible to meet everybody's needs, because the individual needs are shaped by conditions of life and everybody lives in other conditions at the moment.

3. Present problems of equality.

In many industrial countries conditions of life improved considerably during the past century. Social equality increased, especially with regard to education, but the improvement of opportunities for success among the less privileged is still necessary. Much of the pessimism about such strivings, expressed

by Durkheim, lost its foundation. In his time his views were more credible than now.

3.1. International movement.

The present facilities for communication and the opening of frontiers facilitate international contacts between persons of different race, culture, and milieu. Such contacts cause tension but also contribute to social equality.

Studies of migration indicate that the human intellect and psycho-physical capacities are stronger than traits resulting from 'race' or cultural origin. The former enable people to accommodate and to develop traits typical of persons of other races and cultures.

A high intellectual level is often needed to cope with the new situation. This might especially be the case when:

- the immigrant has little help and must rely on his own;
- a lack of information, incompetence in the evaluation, or the application of inappropriate evaluation principles (e.g. short term criteria instead of a long-term approach) lead to an undervaluation of an immigrant's educational and moral values;
- there is much reserve towards everything new or strange.

Such and other problems may be so big that the immigrant drops to the bottom of the social hierarchy in the new culture.

The situation of immigrants is not only relevant for the country of residence but also for the country of origin. In the latter it may be hard to accept the failure of an emigrant who was known as a talented person. Socio-economical success of immigrants contributes to advancements in this field in their country of origin (Markiewicz 1976). Increased prosperity of a population may stimulate some of them to try to improve their position by means of emigration. Moreover, advancement of emigrants may contribute to a positive attitude in their country of origin towards the culture and attainments of the immigration country. A country gains considerably in esteem when immigrants, once they are admitted, are treated equally, responsibly, and kindly. Successes in education obtained by immigrants and their children are a visible testimony of their improved position.

International movement - whether tourism, emigration, or in any other form - is primarily a matter of non-conformists

(Thomas & Znaniecki 1976, Vol. V: 24) and of those whose level of intellectual development is higher than that of average persons from the given culture, race, or social class. This does not refer to the intellectual level of each individual tourist, immigrant, politician, or businessman but to the average level of whole social classes, cultural, or ethnic groups among them. The number of immigrants depends, among other things, on knowledge of foreign languages, international law, wealth, and the availability of international connections.

It is to be expected that better information about other cultures contributes to the reduction of differences between these cultures and increased social equality.

3.2. Distributive justice.

The term social inequality is normally used in relation to things and other goods that people value (Plamenatz 1956; Benn 1964). Equality interpreted in this way may only refer to temporary social equilibrium, because human feelings change in relation to changes in their life conditions. Runciman (1972) stated that improved conditions of life in England did not lead to increased satisfaction, because the aspirations increased even faster. This phenomenon was indicated as the 'Tocqueville effect' (Bell 1970 451; Berting 1986).

Kriesberg (1979: 24, 34) stated that inequalities must be described in objective categories, such as income. Differences in income would be easier to level than differences in human consciousness. He handled inequality as a range. Therefore he thought it possible to compare inequality in different societies with the help of numerical indicators.

Sartori (1962: 344) expected that in each society there are some differences that are painful and other differences that are accepted. Equality would be a situation of mutual compensation. When equality is interpreted in this way it would be possible to accept all forms of social privilege, insofar as the privileged actively compensate the lacks of the underprivileged.

According to the adherents of the meritocratic principle privilege may only be determined by the merits of an individual. Those who actually are characterised by less merits would have to submit to those who are superior with regard to the given

merits. It is admitted that knowledge or ability are conditioned by society, but it is preferred to level the life conditions of the various social strata, rather than to change the social composition of the elite. In this opinion there is the implicit assumption that the elite are capable of changing the life conditions of the less privileged groups, and are prepared to renounce improvements of their own wellbeing, in favour of the underprivileged.

The crisis of the so-called welfare state in Western countries documents the fallacy of this assumption. There might be no social group that easily accepts stagnation or draw-back. Such self-limitation would notably not be accepted by those with financial means and power at their disposal, and who are in the position to use these to acquire further privileges.

3.3. Success for everyone.

This study starts from the principle that everyone should have the opportunity of achieving their maximal development and a chance of success in at least one sphere of public life.

Postulates of equality are difficult to realise, especially in periods of intense social change or crisis. In such times the numbers of the divorced, unemployed, irreligious, and homeless increases rapidly and many pupils cannot complete their school. Thus many people have no success in important fields of life. A lack of opportunities for attainments in a socially accepted way often leads to strivings for success contrary to the dictates of the society: the crime rate grows, there are more prisoners, and the means of law enforcement are extended. The damages caused by destructive activities are enormous; repair costs more than prevention.

Personal defeats and social losses might be prevented by measures aiming at the improvement of the chances of success among the less privileged. This would contribute to social equality because there would be less people in the margin of society. Societies are not static but in a state of continuous change. The creation of opportunities for success in important spheres of public life might steer this development into a positive direction. Social equality can never be the same as individual or social identity.

V. THE DEVELOPMENT OF ABILITIES IN SCHOOL

The development of abilities is in open societies mainly a task for schools. To this end many principles, methods, appliances, and forms of organization are applied. In this chapter the principles of the allocation of pupils into groups, classes, and schools will be discussed and various ways of developing abilities in extra activities out of lesson hours will be presented.

1. The allocation of pupils in schools.

Three main principles for the allocation of pupils into groups, classes, and schools may be distinguished:

- pupils should be grouped heterogeneously with regard to their abilities;
- homogeneous grouping of pupils with regard to ability is the most effective way of obtaining good results in education;
- for some school subjects heterogeneous ability groups are more effective, for other the homogeneous grouping is better suited.

Adherants of the various principles of allocation may prefer application of the principle only on work-groups within a school class, or they may prefer broader application: on the classes of a given school or on separate schools.

In this section some arguments for the choice of the various principles of allocation are discussed.

1.1. Heterogeneous grouping.

Adherents of this principle argue that the stimulation of less talented pupils is needed for the proper development of able pupils. The awareness that one is the *primus inter pares* in a certain subject and approbation for attainments may stimulate to further education. It is assumed that pupils who are less able in school subjects may be gifted in other fields and thus stimulate their peers to attainments in those. The stimulating influence of the gifted pupils on the attainments of their less talented peers is considered to be a special advantage of heterogeneous grouping.

It has been demonstrated that the level of teaching in heterogeneous school classes is higher than in other. When the best pupils are taken away from a school class the level of teaching declines markedly. The moderate results of teaching in the seventh grade of pre-war primary school in Poland are given as an example. It must be remarked, however, that only those pupils who could not continue education in secondary schools remained in this grade. Pupils who had the perspective to continue education entered grammar school after the sixth grade (Bandura 1974: 35). It must be noted that the moderate results in the seventh grade might also be explained by discouragement for learning lacking further perspectives.

1.2. Homogeneous grouping.

Adherents of this principle stress the great influence of homogeneous groups on pace and level of the development of abilities. This homogeneity is always relative. The abilities of two persons may be similar, never identical. It is stated that able pupils encourage each other when brought together. A negative aspect of this way of stimulation may be stress resulting from the necessity of constant competition with the forefront. Concentration on the development of certain abilities might have a negative impact on the development of other abilities.

It is stressed that it must be reckoned with the emotional, social, and physical development of the pupils when homogeneous classes are to be formed. The level of a pupil's development with regard to the mentioned aspects must be similar to that of the other children in the group (Lewowicki 1977: 264-265). It is recommended to bring whole groups of pupils into homogeneous classes, and not individual pupils, in order to avoid troubles caused by the separation from the group of origin (Czarniawska 1973).

Besides intellectual needs, there are needs of an emotional and social kind. Difficulty to meet these emotional and social needs may hinder the development of intellectual abilities. Gifted pupils often have difficulty to meet their emotional and social needs during the adaptation to a new school or group. Such problems can partly be avoided when not one but more pupils

(albeit only three) from the same class are brought into a group that is fairly homogeneous with regard to intellectual ability.

It is stated that talented pupils have more intellectual interest and a richer imagination when they are grouped in homogeneous classes than when they would attend heterogeneous classes. Moreover they would be more polite, able to understand the needs of others and to take a position of leadership, and they would demonstrate more feeling for humour (de Craecker 1951; Hilgard 1967: 233; Lewowicki 1977: 265).

In groups of persons with similar ability it is often necessary to submit to others, at least in certain aspects. Whereas in heterogeneous groups those who have good results in a given field may enjoy authority in that field, such authority tends to be limited to only a few questions in homogeneous groups with regard to ability.

This does not refer to schools, classes, or other groups in education where pupils are brought together under pressure from their parents or the educational authority. Pupils who have authority in groups that are formed in this way may distinguish themselves by other traits than intellectual ability. Able pupils may be pushed into subordinate positions in such groups.

It is assumed that the specificity of talented children is more visible in heterogeneous classes. It also can cause many conflicts, learning problems, nervous breakdowns and thus check the development of abilities. It is stated that the talented, i.e. those who positively distinguish themselves in a group of persons with average abilities, are usually not accepted by the others.

1.3. The combination of both principles.

Many authors have opinions in between the two views here discussed. They argue that some subjects can at best be taught to talented pupils in groups that are homogeneous with regard to ability, but that the principle of heterogeneous allocation may be more effective to teach other subjects (Lewowicki 1977: 265). These authors assume that this solution would prevent from one-sided development of abilities. They state that one-sided education cripples a person in a similar way as in manufacture (Suchodolski 1974, with reference to Marx 1975: 381).

Education in altering groups, heterogeneous and homogeneous, would facilitate mutual understanding and co-operation among differently talented persons, or among those who demonstrate ability and others who do not. Such a combined education would prevent from the alienation of the talented.

2. Forms of the homogeneous grouping of pupils.

It has been noted already that the various principles of allocation of pupils, that have been discussed before, may be applied either to sets of pupils in the same class, to classes in the same schools, or to separate schools.

2.1. Sets of pupils within a class.

The homogeneous grouping of pupils in sets within a class is the least controversial solution. It facilitates effective work with able pupils, avoids boredom and disturbance of other pupils and teachers during lessons.

2.1.1. Individualized teaching.

Work with homogeneous subgroups was eagerly implemented in schools following the Dalton plan, Montessori-system, Jena plan, and similar teaching strategies, especially those based on individual or small group work.

It must be remarked that so-called individualized teaching is not very suitable for pre-school children, pupils with a strong need for co-operation, and many pupils who have not yet mastered the art of reading and writing or independent problem solving. Individualized teaching is a useful method for the consolidation of knowledge. However as a method to present that knowledge, in particular as a method of instruction in reading or mathematics, it is less effective. When a teacher has a dozen or two of pupils in the classroom, of whom each has another task, he is not in a position to explain to each pupil the problem to solve and to verify the solutions, albeit with regard to the lack of time.

Application of individualized methods of teaching and education in a phase of a strong need for new experiences and of an egocentric view on the world may do irreversible harm to

a child's development. When there is only a single piece of a given didactical appliance individualised teaching implies that only one pupil may use it. When the smartest pupil gets that appliance, or someone who is selected by the teacher, this may discourage other pupils to learn, especially when it is an attractive one.

2.1.2. Activation of talented pupils.

Adaptation of teaching to the ability of the pupils may be obtained in a quantitative or a qualitative way.

- Quantitative enrichment of the content of teaching consists of transmitting more detailed and precise knowledge to able pupils than to the others.
- Qualitative enrichment consists of transmitting more complicated material which requires intellectual activity at a higher level. Sometimes some of the pupils are given the possibility of working on the didactic material at an accelerated pace. In that case the given subgroup may complete the teaching program of two or more subsequent years within a single year. Such pupils may finish the lessons earlier and have longer holidays (Więckowski 1973, 1975).

Another means of activating gifted pupils is by awarding bonuses, not for the result itself, but for the way the result was obtained or for the fact that several solutions for a given problem have been found.

Able children may also be given the function of mentor for less talented class-mates (Billik-Bocian 1975). This urges them to increased intellectual activity, not only with regard to the content of the subject but also with regard to the way of transmitting knowledge.

2.2. Parallel classes within a school.

One of the most pronounced adherents of the method of teaching pupils in classes that are homogeneous with regard to ability was the German scientist A.J. Sickinger (1858-1930). Already in 1895 he tried to form classes for pupils of similar ability. He allocated the pupils in four streams:

- main classes (Hauptklassen): eight grades for children of average intelligence;

- transition classes (Vorbereitungsklassen): six grades for the talented, including foreign language courses.
- support classes (Förderklassen): for pupils who repeated a class.
- auxiliary classes (Hilfsklassen): four grades for children with delays in their development.

Pupils had the possibility of passing to another class when they obtained the required results. These classes existed till 1934, when they were abandoned by the Hitler regime.

In the USA the St. Louis Public Schools initiated what is believed to be the first program for 'rapid learners' in 1868 (Passow 1988). Classes for the talented were founded at a larger scale since the 1920s. Such classes were organized in Cleveland, Rochester, Detroit, and New York (Rataj 1975: 78). A special curriculum was followed: 'the Cleveland Major Work Programme'. In smaller communities there were special classes grouping pupils from several schools at 2 or 3 teaching levels. From 1961 onward the number of classes for the gifted increased markedly in the USA, as a reaction to the Soviet Union's launching of the first manned satellite and the successful return of the astronaut to earth.

English schools have three streams of classes (A, B, and C) to which the pupils are selected with regard to their ability. At Brentwood College gifted children from schools in the neighbourhood can learn during half a day weekly. In Essex there are also classes for the talented two times a week (Hoyle & Wilks 1975).

In Israel ten special classes for able children aged 6-8 years have been founded in 1973.

In India about 350 gifted children are selected yearly, since the 1960-ties, and these children are given special care.

In Poland classes have been organised for highly talented pupils, for those of average ability, and for little able pupils at the Lyceum of Krzemieniec in 1923 (Nawroczyński 1923: 228). Among the initiators for a class for pupils of outstanding ability in Warsaw was M. Grzywak-Kaczyńska. In the Polish People's Republic the first experiments with talented children started in the 1960s. The first classes with a broadened program for mathematics were organised in schools at Katowice (1961), Warsaw (1967), and Tyche (1968). The activities in these classes

with a profilation in mathematics was guided by the Mathematical Institute at Warsaw University (Bandura 1974: 45).

2.2.1. Parallell classes.

In Eastern European countries less favourable test scores tend to be interpreted as the effects of social inequality or of poorer living conditions; causes that have to be leveled and not deepened at school.

In spite of this official ideology special classes are organized for more and less talented pupils, in a similar way as in Western countries. The principal reasons for the grouping of pupils are often hidden. Negative selection to certain classes may be motivated as the formation of classes for the following categories of pupils:

- children whose mother has a job;
- children who have to travel to school;
- children of those who are settling in the school-district;
- those who repeated a class may be directed always to the same class.
- children from other districts (when districts are changed the school-board prefers to get the weakest pupils out);
- pupils who come from schools with a lower organizational level (it may happen that such pupils in the new school are grouped in a separate class);
- children who scored poorly on tests of school ripeness (often without clarifying the reasons of such a partition).

The pupils of the one parallell class were found to obtain much higher average test scores than the pupils of the other class. The average scores on tests of knowledge, for example, differed 14.4% between parallell classes (Kwieciński 1975: 166).

Researchers in this field wrote that selections between classes were in line with social selections (Pilch 1971; Kwieciński 1973). In positively selected classes the pupils often had better living conditions than the pupils in negatively selected ones. The average educational level of the parents was much higher in the former class type than in the latter. In the negatively selected classes no measures were taken to level the pupils' lack of knowledge. The teachers valued these classes negatively and they did not like to teach them. Among the pupils of these classes was a negative attitude to learning. They mainly attended school because they still were of school-age. Neither the pupils nor the teachers worked with the idea of

making up for the lack of learning. Teaching and learning in these classes were connected with low prestige, both the pupils' and the teachers'. The ambition of many teachers was to teach in positively selected classes. When a pupil was put into a negatively selected class this often met much resistance from the pupil and the parents. Pupils whose parents were hardly interested in their childrens' future had a larger risk of being placed in a negatively selected class.

Kwieciński (1975: 172) wrote that the formation of classes consisting of pupils of similar intellectual development might facilitate learning only in theory. In reality these classes were formed to facilitate the work of some teachers or to have a model class at school. Negative grouping was often linked with a lack of faith in the possibility of teaching the given group of pupils anything. The teachers rarely associated delays in the pupils' intellectual development with unfavourable conditions of life. Very often the teachers did not even know their pupils' social background. Otherwise it happened that classes were formed of better and poor pupils, being well aware of these pupils' social background: classes for children from better and poor families (Kwieciński 1975: 173).

Homogeneous grouping of pupils is done in countries with different socio-political structure. Differences between the various countries consist both of the number of these classes and of motives of forming them. In Eastern European countries are relatively fewer classes that are homogeneous with regard to ability, compared with Western countries. Less favourable conditions for transport and communication, and the existence of a large number of small schools may also hamper the formation of such classes. In Poland the number of homogeneous classes increased with the growth of the organisational level of the schools.

2.3. Schools for the gifted.

The formation of schools for talented pupils is not as popular as the formation of classes for these pupils. For the parents of pupils who live far from school learning in separate schools is connected with many additional expenditures. Not all parents are able and willing to pay the cost of supporting a

child away from home. Many parents prefer to maintain control of their child. It follows that it is insufficient for the organisation of such a school to select able pupils, but that it must also be considered whether there are facilities to maintain these pupils in the locality of the school.

Schools for gifted children are mostly also schools for socially and economically privileged pupils. Sometimes boarding schools are organized with public funds.

2.3.1. Some developments.

In each larger empire, beginning in antiquity, special attention has been given to the education and formation of youth of outstanding ability. Charlemagne (782-814) founded a school at his court that admitted the most able children of the folk (Wołoszyn 1964: 79). Mohammed the Conqueror founded in his palace a school for the outstandingly able who, after completion of this school, took up the highest functions in the country and contributed to the rise of the Turkish Empire (Borzym 1979: 26).

In the twentieth century schools for the gifted began to be founded on a larger scale. Condorcet, Stern, Claparede, Petzold, and others postulated the separate education of able pupils.

The ideas of Petzold became popular in Germany after the first World War, during which many of the German intellectuals died and for whom successors had to be educated. In 1917 several schools for the gifted were founded, among which the 6-year gymnasium, the technical school (Realschule), and the higher elementary school for girls (Goriszewski 1967; Bandura 1974: 36, 37). As a result of the activity of the renowned psychologist W. Stern in 1918 a school was founded for 5% of the pupils who completed the fourth grade of primary school at Hamburg (Stern 1927: 18-20). Following this example in the next years schools were founded in Göttingen, Leipzig, Hannover, and elsewhere.

In the USA the first schools for talented children were founded in 1918. These schools were organized on the basis of classes for the gifted. The following schools were among the most renowned:

- Hunter College Elementary School that admitted pupils with an IQ of 130 and over;
- High School of Performing Arts at New York for pupils with an IQ over 120;
- Bronx High School of Science (Borzym 1979: 230);

primary schools at Pittsburg for children with an IQ of about 130. These children learned following the Colefax Plan. It consisted of lessons in heterogeneous groups, interwoven with learning in homogeneous groups. In the morning there were lessons in the own primary schools; at about noon the homogeneously grouped pupils had activities in studies and laboratories; in the afternoon they continued learning at the university. During the holidays there were special summer-schools for the pupils where they could learn and relax, and science-camps (Hoyle & Wilks 1975, cited by Borzym 1979: 231).

In Canada schools for the talented were founded on a larger scale in the 1930s. In 1947/48 over 20,000 pupils attended these schools (Baker 1959: 225).

In France several hundreds of experimental schools were founded after the Second World War that are known as the Langevin-Wallon Project. Pupils who completed the fifth grade of primary school were taught in small groups during the next two years, which facilitated individualisation of teaching (Baścik 1964). The École Normale Supérieure, that was attended by many renowned scientists, winners of contests, authors, artists, national leaders, and other politicians enjoyed the highest prestige.

In Poland a five-year boarding gymnasium was founded in 1928 in Rydzyn, near Leszno, that admitted pupils who completed 7-year general school or lower gymnasium. It was a boys' school. There were two departments: humanities and science. It had an elaborate program of out-of-school activities, especially for manual work. The school was managed by T. Łopuszański (Bandura 1974: 43; Rataj 1975: 81; Panek 1975a: 46).

The Russian Soviet Republic alone had in the school-year 1973/74 254 specialised schools with a broadened teaching program for mathematics, electronics, chemics, physics, and other subjects of science and humanities. Moreover there were 288 schools in that republic with a foreign language of instruction (Filippow 1976: 58-59). In the Soviet Union the first boarding school for able pupils with an interest in mathematics was founded in Moscow in 1959. After this example in 1963 similar schools were founded at the universities of Kiev, Leningrad, Novosibirsk, and - in the next years - Czeboksary (Chuvash ASSR) and Tiflis (Gondzik 1976: 10-14). Lessons and maintenance in the boarding house were free of charge.

It can be seen from the preceding information that in the

beginning of the organization of schools for the gifted only very few schools were founded, that they had an elite character, and that often girls were excluded. In later periods pupils from less privileged social groups became more and more admitted but the proportion of children who may attend such schools is very small (Nakielska 1978). This situation caused many conflicts. Those who had to decide about the admission to these schools often had considerable trouble. They were under pressure from many parents who dreamt of their child attending a school for the gifted. Many pupils showed high ability and skill at the entrance selections. The necessity to eliminate the required number of candidates was a hard task (Litierat 1972).

2.3.2. Discussion.

In the academic world is much discussion on the organization of schools for the gifted. Besides the adherents, some of whom have been cited here, there are also many critics against the formation of such schools.

Among these critics is B. Suchodolski (1967: 487-491) who expected schools for the able to cause duality in the school system. These schools would have a negative impact on the chance of pupils from normal schools of getting admitted to university. Thus the selection for university would in fact take place several years before completion of secondary school. Suchodolski wrote:

"From a theoretical viewpoint, only such a concept of education is justified that develops the abilities and intelligence of all children, of the whole youth; but from a pragmatic viewpoint, the organisation of a selecting and exclusive school system must be accepted".

In his further considerations he expected the duality of schooling to become superfluous when the level of education would be sufficiently high to meet the national needs. Similar opinions are included in the work of T. Lewowicki (1977: 264).

3. Other aspects of the formation of abilities in school.

Research findings show that the various schools offer different chances of success in education (Coleman 1966; Coleman et al. 1980; Kozakiewicz 1973, 1975; Kwieciński 1973, 1975; Szymański 1973, 1978; Meijnen 1977, 1986; Dronkers & Schijf

1985). Whereas some primary schools have a large proportion of pupils who continue education at grammar school and university, these forms of education are attended by nobody or by very few of the pupils of other primary schools. It follows that pupils of the latter schools may have no opportunity of coming into contact with such knowledge, ways of thinking, or styles of behaviour that would enable them to make use of higher forms of culture and education. Pupils from underprivileged social groups often also have difficulty of coming into contact with knowledge on a high level by means of mass communication because their family has no newspapers etc., or there is no time and rest to listen educational programs.

3.1. Uniformity of the educational system.

Uniformity of a school system is a frequently heard wish of theorists. It is included in the educational policies of some countries. In practice schooling is differentiated almost everywhere, even with regard to schools of the same level. Among other things, these differences are determined by the social background of the pupils, the localisation of the school, and the qualifications of the teachers. Attendance of a given school thus determines the school career of the pupils.

This influence might be limited when the pupils would learn not only from their parents and in the same school with the same teachers, but would also have an opportunity of using the knowledge and proficiency of talented teachers and the didactic appliances in other schools and benefiting from education by parents who are talented educators. In short: by opening schools and houses for children and parents from other schools and families.

Some experimental schools in the Netherlands, e.g. the very popular Montessorischools, favour such contacts. Pupils are stimulated to invite their class-mates to their homes during the break or after school.

Our own experiment on this theme showed that a good mutual understanding can be obtained between pupils and parents of different social background, when:

- these contacts are regular (e.g. during half a year);
- activities are organized for the children that can be observed

by the parents;

- the parents have the opportunity for conversation.

Thus the concept of an educating society would be realised, in which people would not only care for the future of their own children or pupils but of other children as well, and in which mass-media and computers would be integrated in education. Such a goal cannot be attained when children are educated and taught by the same person for months and years, excluded from social contacts, ceremonies, and meetings (e.g. of religious or cultural kind), or people are indifferent about the children's future and 'tolerant' only insofar as children do not disturb adults in their striving to meet their own needs.

A striving for uniformity often lay at the basis of school curricula. These would have to be oriented on the average abilities of pupils. Presence of pupils whose abilities are markedly below that average urges to special measures and care. The development of high abilities is paid less attention to.

Leontiev (1947) and many others found that the development of abilities is often curbed at school: pupils and students are taught how to operate, instead of developing mental acts. Many minds would only be 'closed' and not inefficient. Moore (1981: 137) signalized a tendency among gifted children to lower performance at school to the average level and even below. This would give the false impression that giftedness disappears between the first and fourth grade of primary education.

3.2. Special programs.

Besides the formation of special schools and classes for very able pupils, various other educational measures have been taken for improving the development of abilities, both in and out of school.

The evening school of J.R. Jablonski deserves to be mentioned here. This school was attended by pupils of primary and secondary schools interested in scientific activity. The pupils selected a theme to which they searched for literature, provided and reported research, and linked their observations to those of their colleagues (Pietrasiński 1969: 143-145).

The introduction of advanced mathematics in primary school in many countries (including Poland) had favourable results. The greatest hindrance to the realization of these programs was

teachers and parents with a relatively low educational level, who had difficulty in understanding the theories of classes, functions, and similar mathematical principles. Sometimes these were earlier mastered by the children than by the adults.

Relatively early the United States of America introduced special programs for the development of outstanding abilities. Moore (1981: 139) informed that there were seven states with major state funding for education of the gifted in 1978/79 (varying between 3.6 and 31 million dollar). Several other states had allocated funds for research and policy development in this field. She added, however, that education of the gifted was not protected by a federal blanket, and this effort must be seen in the light of the ten billion dollars spent on all public education during that same period.

Nevertheless there was some federal legislation since 1970 and Khatena (1982: 421) considered it as a victory of the gifted and creative movements that it was given official recognition for the first time in American history. He reported:

"The years that followed saw the establishment of the Office of the Gifted and Talented; the computerized dissemination services of the CEC/TAG/ERIC, the organization of the Leadership Training Institute (LTI); the invigoration of state activity, the rise of organized parent groups, whose initiative was direct or through professional associations; and the designing and implementation of teacher-preparation programs".

Khatena (1982: 365 - 366), assisted by T. Hanaford and D. Wolfe, conducted two surveys in 1979. The first one was to obtain information on the opportunities for the preparation of teachers of the gifted at various universities in the country. The large majority (90%) of the 3000 four-year colleges and universities in the USA and its territories did not respond. One third of the schools that returned the questionnaire indicated that they offered from 1 to 11 courses on the education of the gifted in a wide range of departments.

"Summer workshops seemed to be quite common, with nearly 62 universities having workshops for teachers, 15 for gifted children, and 33 offered workshops for both groups. Undergraduate offerings were being made at 45 colleges, graduate offerings at 105 colleges, and 58 offerings were made at both levels. On preparation for degree and certification requirements, 40 institutions prepared teachers for state certification to teach gifted children, 49 offered the master's degree, and 12 offered doctor's programs; 15 institutions offered preparation toward both advanced degrees and certification".

The second survey was to identify which states provided their

teachers with in-service training pertaining to gifted children. It was found that 26 states supported college or university training, 31 provided in-service workshops, and 32 supported state, local, and national conferences as sources of in-service training for their teachers. In addition, 7 states reported that they provided in-service training to their teachers by means of projects, demonstration centers, and in-service packages.

In western Europe the interest in the development of outstanding abilities is of a much later date. The first Dutch organisation in this field, for example, was founded in 1979. A national union of parents of gifted children was founded in 1987 and there are no special schools or even classes for talented pupils, neither on the primary level nor in secondary education in the Netherlands.

In socialist countries the development of outstanding abilities is mainly stimulated by the state. Major elements of the educational policy in this field are: systems of bursaries and premiums for able pupils and students; schools for arts, linguistics, mathematics, or sports in which specialization in the given field is combined with the normal school curriculum of primary or secondary education. More public support, both of material kind and in the form of guidance by specialists, is given in the Soviet Union than in other socialist countries like Poland (Nakielska 1978).

3.3. The educational system and social equality.

Certain groups of pupils find their access to higher levels of education closed. The fact that there are no perspectives is in some educational systems (such as the Dutch one) seen at an early stage, whereas in other systems (e.g. the Polish one) it becomes apparent at a later stage, e.g. at the entrance examinations to university.

From a psychological viewpoint it is probably better to give pupils the perspective of further success. This might improve the efficiency of learning. A sudden blocking of these illusory perspectives can be a painful shock. The planners of the prolongation of these illusions might have anticipated that many would relinquish educational success in favour of family life or a job with much higher earnings than those during a

study. On the other hand, a situation in which pupils are very early deprived of educational illusions, when left without perspective at an age at which they have not yet crystallised other equally important needs, may cause many conflicts both in and out of school. Theorists in favour of prolongation are correct with regard to immediate goals. On a longer term such a policy may do much harm, especially of a moral kind. It would be better to inform pupils about their limited chances and to show them ways to increase these chances.

A limitation of the work-field of schools for the gifted implies the acceptance of social inequality without the creation of opportunities to overcome it. When educational careers depend on the place of residence or social background this may cause a wrong use of the intellectual potential of society.

It must be one of the tasks of the school to build a new social hierarchy based on knowledge and ability. Societies and organizations that have only one or a few social hierarchies tend to be a ready source of conflict. Those at the bottom of the hierarchy who have no possibility for upward mobility nor for entering an alternative hierarchy where they might advance will rebel. It has been stated already that individuals and societies as a whole only painfully accept stagnation or a loss of privilege. Initially the formation of a new hierarchy often leads to conflict between those who stand high in the old hierarchy and those forming the new one. Separation of the fields of action of both hierarchies may effectively neutralize tensions. Operation of conflicting hierarchies in the same field (e.g. of a religious and an atheist value system in school) requires much tolerance and understanding of both groups.

The formation of an alternative hierarchy is an age-old solution. Examples are the moral hierarchies formed by religious groups, family hierarchies, or military ones which gave members the opportunity for upward mobility throughout their whole life. A hierarchy based on knowledge or education would be suited for that role in our times.

When the school limits itself to the reproduction of existing social inequality it is hardly interesting for the less privileged. Able persons with an unfavourable social background try to develop their abilities and to gain esteem in other fields of social life (among fellows, in political, religious,

artistic or sports groups, or among delinquents). Education in homogeneous groups, interwoven with formation in groups of mixed ability, ought to be everyone's right, not only of the very few who because of the existing social structure can make use of schools that educate on an extremely high level.

VI. POLISH PRIMARY EDUCATION IN THE 1970s.

During the 1970s attempts were made to introduce a school reform in Poland. Its main characteristics were a prolongation of general primary education from eight to ten years and the introduction of three main streams in secondary education. After the common ten years in primary school a rather small proportion of the pupils would be prepared for an academic study. The large majority would be directed to vocational schools which not always led to higher educational levels.

The reform met the severe criticism of progressive scholars of education who argued that such a dualism in the educational system would have particular negative effects on the situation of the socially less privileged, since they usually attended vocational schools.

The school reform has not been introduced, among other things, because of the crisis of the 1980s. However some of its elements have been realized:

- school-age started at six instead of seven years;
- abolition of the entrance examination for grammar school;
- introduction of new contents and school-books for several subjects (e.g. Polish language, history, and mathematics);
- concentration of rural schools.

Some of these changes have only been temporarily, e.g. the reference to grammar school by the teachers in primary school.

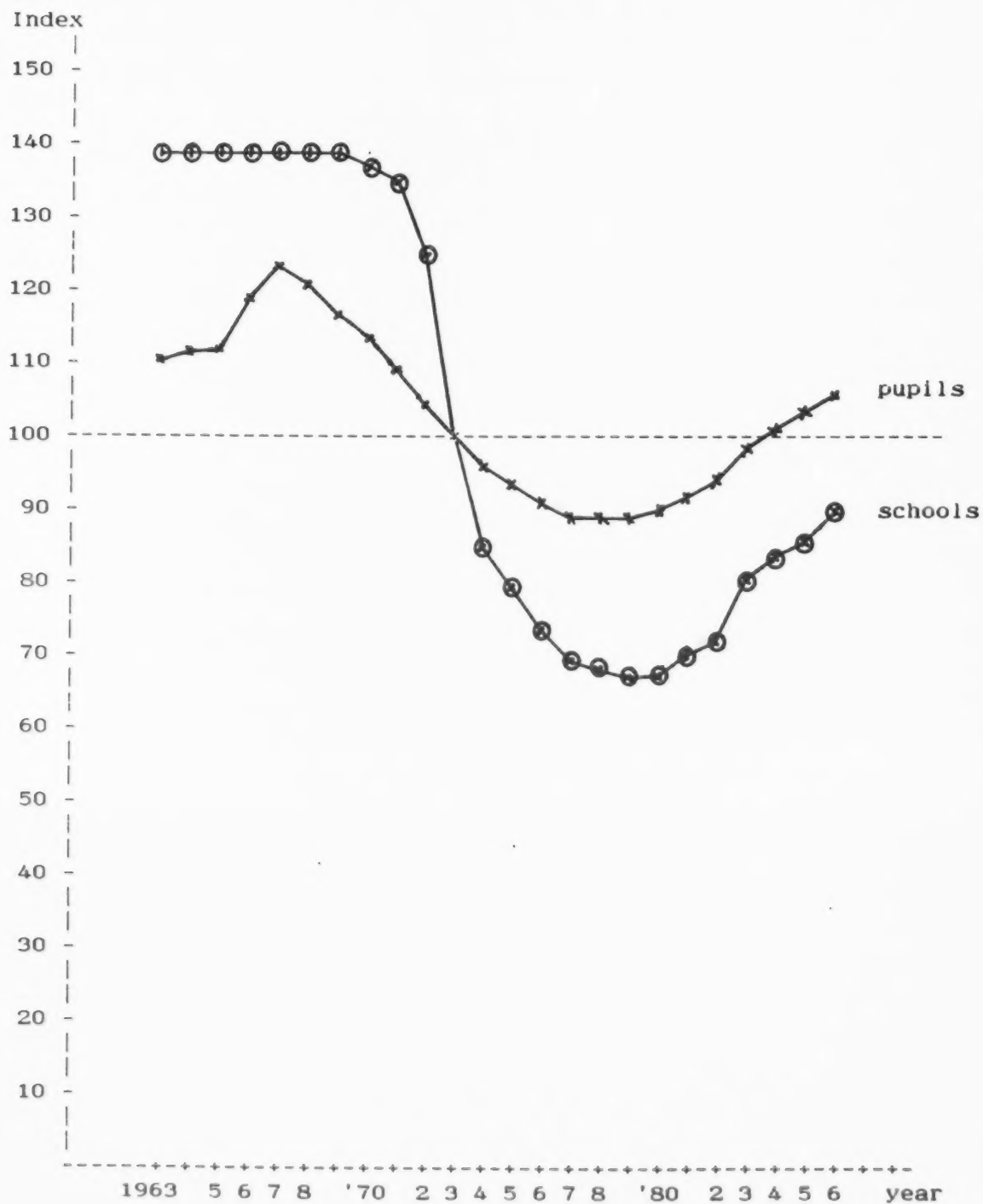
Some elements of the educational system and of the reform, which are of special interest for this study, are discussed in this chapter. Statistical information is derived from the Polish statistical yearbooks (RS) and the yearbooks of education (RSSz).

1. The network of schools.

State policy with regard to the network of schools, and by consequence school size, has changed a great deal. During the first decade after the second World War there was much need for well educated persons because the invaders exterminated the Polish intelligentsia. Therefore schools had to be concentrated around the available qualified teachers. When a sufficiently large teaching staff had been formed schools were decentralized.

Figure 1

Index figures (1973 = 100) of the number of pupils and schools in Polish full-time primary education, 1963 - 1986.



'Thousand schools at the Polish millennium' was a popular motto of those times. It was the aim to have a school in each village. As a result of this policy thousands of small schools came into existence with one or two teachers, hence with combined grades, insufficient equipment, and modest results.

It was found that such a fine network of schools was relatively expensive compared with a wider network of larger schools. During the years of economic crisis, in the 1970s, this became one of the arguments in favour of the school reform which included centralization. Small schools were closed down in order to create large, comprehensive schools. During the social revolution in the present decade the school reform was interrupted. However an effect of the activities in the 1970s remained in the form of a reduced number of small schools and numerous combined schools with several hundreds of pupils.

1.1. Statistical information.

The changes at the time of the present investigation may be illustrated by some statistical information (RSSz 1973/74: 60; RSSz 1978/79: 41).

During 1973-1978 the proportion of schools with more than 400 pupils doubled (from 4.5% to 8.7%). This growth took mainly place in the countryside; in towns it was less than one percent. Many schools with less than 60 pupils were closed. Among rural schools the proportion of such schools decreased from 18.0% to 3.5%, i.e. a factor 5. In towns the decrease was minimal: only a half percent.

In the period 1973-78 6,184 rural schools, i.e. one third of all schools in the countryside, were closed down. The number of urban schools decreased by 115 during that period (see figure 2).

1.2. School size.

Big schools (of more than 600 pupils) were given various privileges. One of these was employment of specialists (e.g. a pedagogist, physician, dentist) and kitchen personnel (Dz. Urz. MOiW, 10.02.1975). It follows that big schools could do much more to care for the pupils and to educate them. Some of these

schools offered the teachers more attractive employment. The problem among teachers in traditional rural environments, how to spend their free time, was solved by these schools. Work amidst a larger group of professionals offered them opportunities of exchanging knowledge and experiences, stimulated to intense work, and allowed the formation of specialized classes or circles of interest.

A negative aspect of big schools is that teachers and peers know less about each other. This might lead to difficulties of choosing appropriate methods of working with the pupils. Children attending smaller schools are in a better position in this respect. Here pupils and teachers know each other very well. Pupils who have some trouble can be helped appropriately and in time. Smaller schools probably have more opportunities than large schools for an individual approach to the pupil and for teaching without disturbances in the emotional development of the children. Acquaintance with the pupil may sometimes be a hindrance for an objective estimation of his intellectual potential. Some teachers assumed that all pupils with an unfavourable social background have limited intellectual capacities. Such an opinion was found to be harmful for these pupils (Rosenthal & Jacobson 1968). Many pupils on whom such a negative opinion was given obtained good results when they changed to another school where the teachers did not know their social background.

It may be concluded that school size may have different effects on school success of pupils from various social groups. Chapter 15 discusses the relationship between school size and success at the competitions.

1.3. Travelling.

Concentration of schools led to increased travelling, which had various negative consequences, e.g. increased risk of traffic accidents and the loss of time and money.

In 1979 one out of 13 pupils travelled to a primary school out of the place of residence. Among the pupils of rural schools this proportion was one out of 4. As a whole more than half of the pupils were bussed to school. In the period 1973-79 the number of pupils who had to come from outside the locality of the school doubled. The number of pupils who were bussed by

official organizations increased three-fold, with a faster increase among the pupils of urban schools than among those of rural schools (RSSz 1973/74: 67; RSSz 1978/79: 42-43).

These statistical data did not include pupils who walked or travelled to a school in their own place of residence. Such pupils might sometimes also have a troublesome way to school because there are localities in Poland stretching over a dozen kilometres or more, as for instance the village of Długie.

2. School equipment.

Negative aspects of concentration had to be compensated by better equipment of the school with resource rooms, library facilities, a gymnasium, club, canteen, etc.

2.1. Resource rooms.

A resource room is a classroom where only one subject is taught and where all appliances for that subject are brought together.

The availability of resource rooms facilitates the didactic work at school. Appliances need no longer to be taken from one classroom to another and are less damaged. The available appliances can be used more and better, especially those that are difficult to displace or to set up. Resource rooms give the teachers the opportunity of exposing fundamental illustrations, graphs, maps, and similar appliances permanently and performing experiments easily and promptly. The teachers are stimulated to prepare their appliances and to use them inventively. Easy access to the appliances of the preceding lesson is effective for going through the material once again. Particularly for pupils who acquire knowledge mainly by sight or action, resource rooms make learning easier.

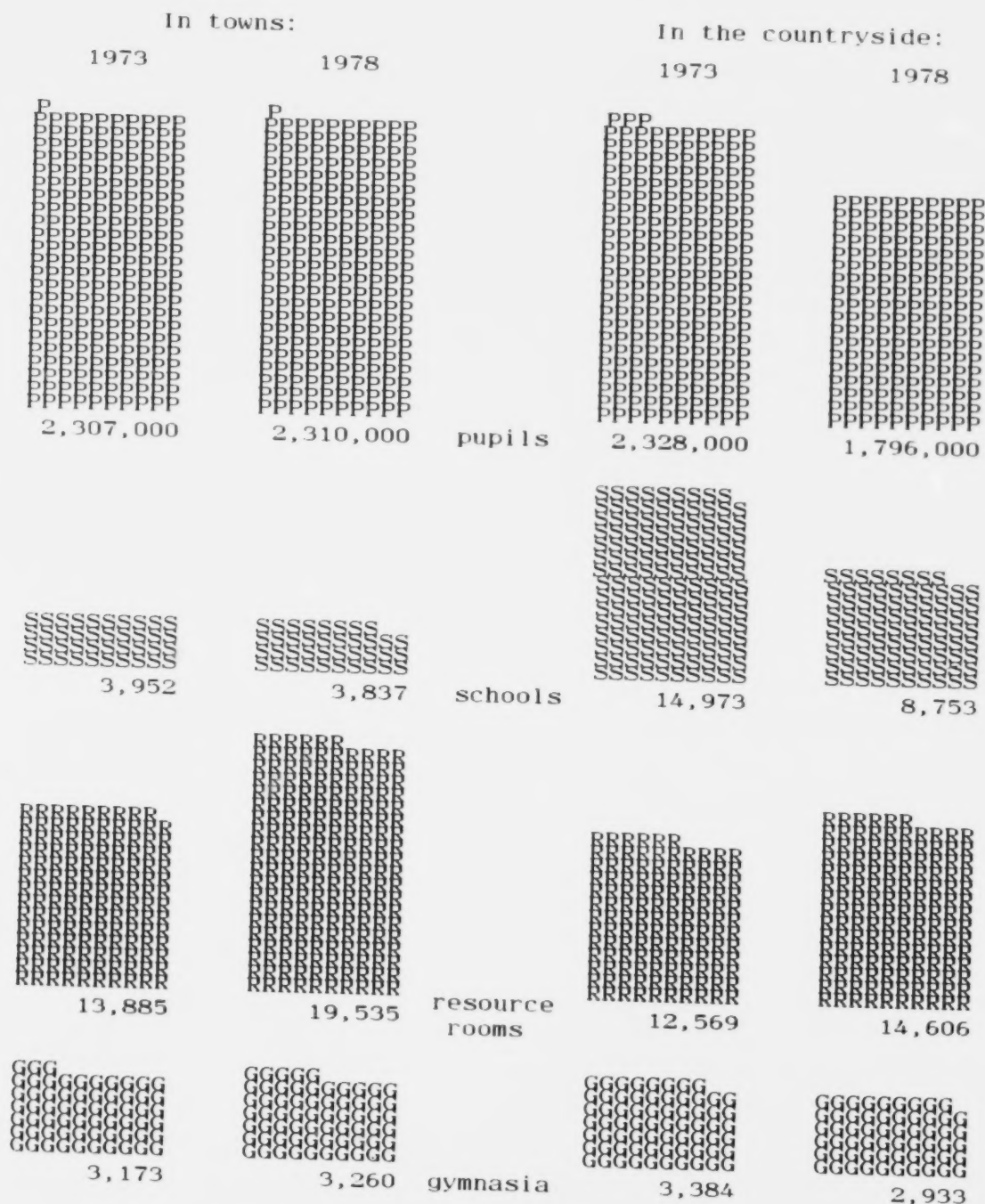
Resource rooms may also give a testimony of the teacher's didactic activity. They may give teachers with initiative a feeling of self-esteem.

The organization of resource rooms may also have negative effects. The availability of such rooms may lead to conflict between those teachers who succeeded to organize a subject room, or organized it in a very inventive way, and those who did not.

Figure 2.

Pupils, schools, resource rooms and gymnasia in Polish primary education in 1973 and 1978.

P = 10,000 pupils
S = 100 schools
R = 100 resource rooms
G = 50 gymnasia



A resource room must be adapted to the needs of ever changing groups of pupils. Another problem is to divert the pupils' attention from the various exhibits to the theme of the lesson.

2.1.1. Statistical information.

The number of resource rooms in primary schools increased markedly in the period 1973-79 (from 26,454 to 34,141: a growth of 29%). This increase took mainly place in urban schools, where it was 41%. It was only 16% in rural schools. Moreover the initial number of resource rooms was in rural schools much smaller than in urban schools (see figure 2).

Whereas in 1973 the average number of pupils to one resource room was 166 in urban schools and 185 in rural ones, this number had been levelled in 1978, when it was 122 in urban schools and 123 in rural ones. This outcome was the result of a compensation of the different development of the number of resource rooms between rural and urban schools, on the one hand, and a larger decline of the number of pupils in rural schools than in urban ones (resp. 18% and 23%), on the other.

The number of resource rooms to one primary school was in 1978 three times larger among urban schools than among rural ones. Five years before the difference was a factor four. This is a rather modest improvement with regard to the decline of the number of rural schools by 41% (RSSz 1973/74: 70; RSSz 1978/79: XIV-XV, 39).

2.2. The school library.

It is to be expected that school libraries, especially with a large collection including all the titles needed to prepare for the competition, have a positive effect on the pupils' chances of success at the competitions.

Library facilities in the school might be particularly relevant in rural schools, because the pupils attending such schools usually have no other of such facilities in their neighbourhood. When their school lacks a library, or when it is insufficiently equipped, pupils from the country must often travel far and spend much money and time to obtain the necessary literature. Urban pupils may make use of the facilities of public libraries. Those living in a university town may even use

scientific libraries.

In 1977 the average number of volumes in the libraries of primary schools in Poland was 17.2 to one pupil (RS 1978: 389).

2.3. Reading room.

The availability of a reading room in the school may be favourable for the pupils' chances of success when they:

- can read books of great demand in the reading room, of which there are only one or two in the collection of the school library;
- have no possibilities of lending books lacking in the library at school and at home (e.g. of other libraries or of private collections);
- can get no advice at home about what to read;
- have no opportunity to read attentively at home, due to a lack of room, the presence of young siblings, members of the family with little idea of the necessity for a pupil to read, etc.

2.4. Gymnasium.

Physical training has been found to have a positive effect on the pupils' attainments in education (Spionek 1975: 139-142). Drop-out and other failures were observed more among pupils whose physical condition was below the average than among those in good condition (Czapów 1978: 267-268). Only a few physical defects, particularly such as can hardly be corrected by the pupil's own effort, may lead to supercompensation in learning. Physical training is more effective when it is done regularly. A suitable room is needed, so that training may be continued when the weather is bad.

There were 6,341 gymnasiums in primary schools in Poland at the time of this investigation. The proportion of schools with a gymnasium was 85% among urban schools and 33% among rural schools.

In the period 1973-79 the proportion of schools equipped with a gymnasium increased from 80% to 85% among urban schools and from 23% to 34% among rural schools (see figure 2). When the decline in the number of schools is taken into account the development in the countryside occurs to be less favourable.

In fact the absolute number of gymnasiums in rural schools decreased by 13%, whereas that in urban schools increased by 3%. The school reform led thus to a reduction of rural training facilities (RSSz 1973/74: 70; RSSz 1978/79: XIV-XV, 39).

2.5. Club.

The organization of a club is an important element in the care of pupils in Polish schools, because a large majority of the parents have a job. The opportunity to leave the child under the care of teachers or of qualified personnel in the club room of the school gives the parents the certainty that their child makes good use of his time, does home work, is kept away from persons who might be a bad influence. The club is also important for pupils who have to wait a long time for their bus after school.

The number of pupils who made use of clubs in the school increased in the period 1973-79 by 12%. When the decline of the number of pupils (a demographic factor) is taken into account it can be seen that the proportion of the pupils in primary school who made use of clubs increased by 25%. At the time of the investigation 13.5% of the pupils in primary education made use of these facilities. (RS 1975: 461; RSSz 1978/79: XIV-XV, 222).

2.6. Canteen.

The organization of a canteen in the school is assumed to be an important contribution to the pupils' health. Moreover it may make it possible for the pupils to participate in activities outside lesson hours. In families where both parents have a job it is often impossible to prepare warm meals at midday or early in the evening. A canteen providing warm meals in the school makes it possible for children from such families to have a good nutritional pattern.

The possibility of having a meal at school is also important with regard to the time that many pupils spend with travelling to school and staying on late. Pupils in the highest grades of primary education spend daily about seven hours at school. Pupils who have to travel to school may be up to 12 hours away from home. The provision of warm meals is indispensable for

them.

It is to be expected that the availability of a canteen in the school, particularly a canteen providing warm meals, has a positive effect on the pupils' chances of success in education. The possibility of having meals at school might contribute not only to the pupils' health but also to concentrated learning and to the opportunity of participating in activities outside lesson hours.

The proportion of pupils in primary education who made use of the canteen at school increased in the period 1973-1978 from 31% to 41%. It follows that the majority had no meals at school. This majority consisted mainly of pupils living close to the school, but also of pupils from less privileged social groups whose parents could not afford the meals or disregarded the relevance of this form of nutrition. At the time of the research 32% of the pupils in primary education had their meals in the school canteen (RS 1975: 461; RSSz 1978/79: XIV-XV, 227).

2.7. Modernity of the school building.

A modern and attractive school building might facilitate learning and stimulate pupils to stay at school after school hours and to take part in extra activities.

A positive influence is only to be expected when the quality of the school building is higher than that of the pupils' homes. The housing conditions of the urban and rural population in Poland varied very much in 1978. Whereas 57% of the dwellings in town were centrally heated, only 17% of the rural dwellings had this equipment. Good sanitary facilities were available in 73% of the urban dwellings and 21% of the rural ones (RS 1987: 443).

High quality of the rural school buildings might compensate for such differences in housing conditions between the urban and rural population.

3. Out-of-school activities.

Homogeneous groups that meet out of the obligatory school program may function as interest circles, childrens' or youth organizations, editorial boards of school-papers, teams that

prepare for competitions, etc. Such forms of out-of-school education are briefly discussed here.

Poland has tried to realize the principle of uniform teaching and education. Much out-of-school activity takes place in the schoolbuilding, with participation by members of the pedagogical staff of that school or from other institutions. This situation differs from that in some capitalist countries where leaders of youth organizations, sports clubs, scouting, clubs organized by churches, etc. may be persons without pedagogical qualifications and with a low level of education, and where most schools are not open for out-of-school activities.

3.1. Circles of interest.

Interest circles are a very popular form of out-of-school education in Poland. During 1977 these circles had over five millions of members. The circles organized in primary schools had more than a million members (26% of the pupils), many of whom took part in more than one (RSSz 1978/79: 220, 223).

3.1.1. Legislation and facilities.

The circles of interest are regulated by law and they have a specified frame of activity. The purpose of their activity has been formulated as follows:

"To awake the pupils' interest for scientific-technical work, to acquaint them with basic research methods, and to develop fundamental skill in the field of scientific research (Dz. Urz. MO, 11.10.1950).

The circles of interest can be divided in:

- subject circles e.g. on Polish language, geography, chemistry, mathematics, philosophy;
- technical circles on radiotechnology, photography, modelling etc.;
- artistic circles: dance, theatre, choir and singing, music.

Each of these categories are given different facilities. For the activities in artistic circles, for example, 4 hours weekly are available, for work in the technical circles 2-3 hours can be spent, and for subject circles up to two hours. It must be remarked that lessons in Polish schools are somewhat shorter than in many other countries, e.g. in the Netherlands. Breaks

for lunch and other meals are also shorter. These meals are often prepared and taken at school.

The school-board has to agree with the organization of a circle. The remuneration for the leader amounts to one quarter of the weekly salary for each hour of activity in the circle. A growing interest in the circles was connected with increased requirements with regard to the number of pupils. In 1959 the minimum number of participants of a circle of interest was fixed at 10; in 1960 it was 12, and in 1973 it was heightened further to 15. The maximum number is 30. A circle has to terminate its activity when it does not obtain favourable results, or when at three subsequent sessions less than 12 members are present (or 7 in the exceptional case of a circle with less than 15 members).

3.1.2. Statistical information.

Membership of the various types of circles shifted in time. Whereas in the 1960s the circles of interest in arts were numerically the strongest, the subject circles had the largest membership during the 1970s. In 1973/74 the share of the subject circles was 48% of the total membership of all circles. In 1960/61 this share was only 29%.

In 1978 there were 511 circles to 100 primary schools, 341 of which (67%) were subject circles. During that year 25% of the pupils of primary school took part in one or more circles.

In the period 1960-1979 the number of circles of interest more than doubled. It must be added that the number of schools halved as a result of the policy of concentration. It follows that the ratio of the number of circles to 100 schools increased more than 4 times. Participation, expressed in the total number of participants in the three types of circles, almost doubled in that period. This growth of the participation came entirely on the account of the subject circles where it increased fourfold. The participation in technical and artistic circles of interest was rather stable (RSSz 1978/79: XIV-XV, 223).

Whereas the number of circles of interest increased, the average number of participants decreased from 20 in 1960 to 16 in 1978. Nevertheless the leaders had complaints about the fairly high number of pupils which made it impossible to teach in an individualized manner.

3.1.3. External contacts.

Some municipalities have inter-school subject circles. These are often under patronage of members of the scientific staff of universities.

Some circles of interest co-operate with circles in other countries. An example is the Club of Young Mathematicians 'Pythagore' at Zielona Góra that co-operates with mathematical circles of primary schools in Frankfurt/O. They organize common activities and meetings such as friendship tournaments.

3.2. School newspaper.

Another way of developing abilities is to edit a newspaper. In these periodicals the pupils may write on such themes as literature, history, folklore, or regional news; they may write interesting proverbs, legends, folk-tales, stories, reports etc. In Western countries the school papers often also include advertisements and announcements.

Work on a newspaper is a training in writing, stimulates pupils to get profoundly acquainted with the subject, teaches them to read periodicals, and, first and foremost, prepares them for the role of creator of publications.

Sometimes the editorial boards of school papers co-operate with the editors of newspapers in other schools to publish an inter-school paper or even a regional periodical. A Polish example of the latter is the 'Regional Youth Paper - Piękna Góra' that is published by the primary school at Tymbark. In Western countries almost each larger school publishes its own newspaper, thanks to easy and rather cheap techniques of multiplying texts.

3.3. Youth organizations.

Children's and youth organizations are an important form of development of abilities.

One of the most popular organizations is scouting. Most scouting teams develop abilities in the field of nature, history, the military, house-keeping, etc. Polish scouting teams can be divided in those that develop proficiency in general and

specialized ones. The latter specialize in mathematics, natural science, chemics, etc. or consist of sanitary crews, commandos, etc.

In 1977 Polish scouting had over three millions of members. In the next years membership decreased to less than two millions, i.e. to the level before 1970 (RS 1978: 21). The policy of the leaders of scouting in Poland changed over time. It was either tried to extent membership or aimed to shape their members' philosophy of life.

3.4. Friends of nature.

An interest in nature and environment is developed by the organizations of friends of nature, flora, and fauna. These aim to spread knowledge of the principles of animal breeding and the cultivation of plants, of the structure of living organisms, and the role they play in the natural environment. In Poland the Union for the Protection of Nature has widespread activities in schools. This Union had in 1977 almost 1.5 million members, most of whom were pupils (RS 1978: 21).

3.5. International friendship societies.

Friendship societies between nations contribute to the development of knowledge in the field of geography, history, foreign languages, and culture. Such organizations stimulate the spread of knowledge about other countries by means of studies of these countries, correspondence (individually or in groups) with inhabitants of those countries, language courses, and meetings with representatives from the given countries.

It must be remarked that knowledge about other countries is often distorted by myths, prejudice, one-sidedness, especially in the case of relations between Western and Eastern European countries. It would lead beyond the scope of the present study to discuss this matter in further detail.

3.6. Trade co-operatives and other organizations.

Pupils' trade co-operatives may not only be active in trading (to provide pupils of school appliances, food etc.), but

also with training in accountancy. Thus the members may develop abilities in the field of mathematics and economics.

Besides the organizations mentioned here, there are many other organizations that contribute to the development of abilities of pupils. A discussion of the activities of such organizations might be the subject of a separate study.

VII. COMPETITIONS IN SCHOOL SUBJECTS

Competitions in school subjects are a way of comparing the learning results and providing able pupils with additional educational chances. In Eastern European countries the organization of competitions is an elaborate method that is part of the educational system. Competitions are held among pupils of primary school (here simply called 'competitions') and among pupils in secondary education (which are called 'olympics').

It has been found that participation in competitions is a good prognosis of successful completion of the school. In comparison with the university students who were admitted after an entrance examination, the participants in olympics obtained better marks during their study, although somewhat less of them completed the course within the formal time (Mazur 1973).

In this chapter the competitions and olympics, as they are organized in post-war Poland, will be discussed.

1. The Polish school competitions in brief.

Competitions were organized in several stages. The first stage was at inter-school level, the second stage on a regional level, and the finals were on the level of a voivodship (i.e. at provincial level). The 'olympics' (for pupils in secondary education) had a fourth stage: national finals.

The themes of the contests and the principles of selection varied. In practice the organizers exchanged information on this matter. By consequence, tasks and selection principles of competitions at the same stage were quite similar (as will be discussed in chapter IX). Admittance to a higher stage of the contest depended mostly on gaining a previously fixed number of points. The method of admitting a fixed number of the best participants to the next stage was applied at much fewer contests. The least frequent selection principle was admittance of a fixed number of participants out of each of various social groups.

A victory at the competitions and olympics was rewarded. Prizes varied in subsequent years and in various regions. Often winners could only obtain a certificate of appreciation. At other contests material prizes of significant value or

privileges at or exemption from school entrance examinations at a higher level could be gained. The latter reward was especially profitable for pupils in higher level secondary education, because admission to university was one of the most difficult thresholds of selection in the Polish educational system. Passing this threshold with the help of a victory at the olympics was therefore a main aim, not only of the given pupil but also of his parents. Some parents have even paid a coach who prepared the pupil for the olympics (Białecki 1975: 60).

The winners of competitions (for pupils in primary school) were satisfied with material prizes in the form of a booktoken, diploma, or small souvenirs. Sometimes they got priority to enter selected secondary schools. However some of these schools (e.g. those in Warsaw) strictly abided by the regionalisation of admission. Therefore, it could happen that the winners were denied entrance to these schools. Continuation of education in exclusive schools could also be hindered by the lack of boarding facilities at the given school or means of maintenance when studying outside the parental home.

For pupils in secondary education participation in olympics was connected with very important rewards. The winners of an olympic, i.e. the six best participants, were exempted from the entrance examinations of several faculties of a university. The finalists, i.e. those who attained the last stage of the olympics, were exempted from the entrance examination for a study in the subject of the olympic only. Moreover, finalists were exempted from the final examination of secondary school.

The winners of the olympics in technology, for example, were exempted from the entrance examinations for all fields of study at technical universities, except architecture. In addition, they were directly admitted (without examination) to agricultural universities in the fields of building and construction, wood technology, drainage engineering, geodesy. At pedagogical and general universities they were directly admitted to study such subjects as technical education, applied technology, mechanics, technical information science, and electronics, without an entrance examination. Other finalists of these olympics were only exempted from the entrance examinations of the faculty of technology (MOiW, 10.VIII 1974).

The winners of olympics in history were exempted from the entrance examinations of studies in history, sociology, and political science. The finalists were without examination admitted to the study of history. At the entrance examinations of other fields of study they were exempted from the examination in history (MOiW, 4.VII.1974).

The finalists of olympics had better conditions for continuation of education than the finalists of competitions for pupils in primary school. University students who obtained high marks at examinations were awarded scientific grants, independent on their parents' income. Universities also had more and better boarding facilities than secondary schools.

2. History and legislation.

The first olympic held in Poland after the Second World War was a contest in mathematics in 1949/50. During the following decade the competitions and olympics had their greatest growth. In those years the Ministry of Education issued about 40 circulars and instructions. For comparison it may be added that in the period 1960-1980 some 20 of such documents were issued.

In the 1950s regulations were made for competitions and olympics in the following subjects: mathematics, recitation, reading, technology, chemistry, physics, performing art (choirs, singers, and actors), plastic art, photography, philately, chess, gardening, and sport. During the 1960s instructions were given for olympics in knowledge of Poland and the modern world. In the 1970s competitions in history, geography, literature, Polish language, and Russian language were introduced.

Before the legal regulation of competitions and olympics, contests were organized under the initiative of the local authorities. Since 1962 the contests may only be organized with the assent of the school superintendent or the Ministry of Education (MOiW, 10.VII.1962).

Participants in many of the contests must have a very good mark for school behaviour and at least satisfactory marks for all school subjects. In order to broaden the basis for recruitment of participants and to avoid over-fatigue, pupils in primary education were forbidden to take part in more than two competitions (MOiW, 5.XI.1973).

In the legal regulations of the competitions the following goals are noted as important (MOiW, 21.XI.1953):

- to heighten the level of education in the given subject;
- stimulation of love for the given subject;
- to find youth of outstanding talent;
- to help with the furtherance of education;

- formation of appropriate character traits.

It must be remarked that no attention was given to other aims, such as the development of innovative and creative ideas. This aspect has been mentioned by some competition organizers and theorists. In their opinion the tasks at the contests must demand much ingeniousness and originality, even in the case of application of knowledge that only slightly surpasses the teaching program of the participants' school. It was advised to value the simplest and the most ingenious solutions as the best. In practice it is very difficult to distinguish inventiveness from training in the solving of problems. Research by Bialecki (1975: 60) showed that some participants in olympics had the use of sets of questions from preceding years, and they had solved about three thousand questions from these sets in the course of a single year. Those participants always had a better chance of winning the contest than those who had no similar training.

One of the participants in olympics, the later professor of mathematics A. Schinzel, answered on the question whether the contest was helpful in his scientific work that the olympics stimulated the development of abilities, the formulation of problems, putting questions and finding answers, but that they did not prepare for the formation of theory (Bialecki 1975: 61).

3. Participation.

Participation in the various contests varied. Information on this matter has been gathered by the Ministry of Education (MOiW 1974).

3.1. Competitions for pupils in primary education.

From this pamphlet it can be seen that in 1973/74 44% of all pupils in grades VII and VIII of primary education took part in the competitions in school subjects. The largest proportion of pupils in both last grades of primary school who attained the finals were in the voivodships Warsaw (capital), Rzeszów, and Wrocław. The lowest proportion were in the voivodships Warsaw-region, Koszalin, and Szczecin.

The number of competitions held that year was the largest in the voivodships Rzeszów (8) and Kraków (7), and it was rather

small in the voivodships Warsaw-region (except the capital), Poznań, Łódź, Białystok, and Zielona Góra (3). It may be remarked that extreme differences in the participation might occur in regions bordering on each other, e.g. Warsaw (capital) and Warsaw-region.

Competitions with a high number of participants were the contests in mathematics (31% of all pupils), Polish language (21%), and physics (12%). Less pupils took part in the contests in chemistry and biology (each 10%), Russian language (8.5%), geography, history, and civil education (about 7% each).

3.2. Olympics.

Participants in olympics were mainly pupils in the highest grades of secondary schools. Among the participants in the olympics of 1976/77 the share of pupils in grades IV and V was 65%, that of pupils in grade III was 23%, and 7.7% of the participants were in grades I or II.

Pupils from the two lowest grades of secondary school were among the winners of the olympics in mathematics, natural science, art, and technology. Among the winners of the olympics in humanities, in contrast, were no pupils from these lowest grades. A victory in the latter olympics required probably much more training and reading than a victory at an olympic in a subject of science, art, or technology.

Among the most popular olympics were the contests in technology (45,000 participants), Russian language (40,000), English language (6,083), biology (4,537), and mathematics (3,799 participants). Rather few pupils took part in the olympics in geography (632) and music (835).

It may be concluded from this information that those olympics in subjects were the most popular which belonged to the fundamental subjects at the entrance examinations for most fields of study. Olympics in subjects that were obligatory in only a few fields of study were clearly less popular (Kowalski 1978).

The chance of winning the olympics was found to be closely related to the type of school attended by the participants. Pupils from general secondary education had the best chances. Among the winners of the olympics 87% attended that type of

schools; the other 13% attended vocational secondary schools. It may be added that much more pupils attended vocational schools than grammar schools. Also at olympics in science, i.e. in those subjects that were fundamental in vocational education, pupils from vocational schools were under-represented among the winners. A majority of pupils from this type of education (64%) were only among the winners of the olympics in technology. This percentage was nevertheless lower than the proportion of pupils from general education among the winners of all other olympics.

It follows that the proportion of pupils from vocational education among the winners of contests in science and technics was smaller than the proportion of pupils from grammar schools among the winners of olympics in linguistics and humanities.

Similar conclusions may be drawn from research by Bialecki (1975: 80) on participants in the olympics in mathematics during 1949-1968. From the information presented by that author can be seen that pupils from vocational schools had fewer chances of taking part in the olympics. The proportion of these pupils never exceeded 25%. The lowest proportions (about 8%) were noted in the periods 1949-1951 and 1958-1962. Among the finalists at the olympics in mathematics in 1971/72 was only one pupil from higher level vocational secondary education against 62 pupils from grammar schools; there was no pupil from basic vocational education among the finalists (Bialecki 1975: 113).

From a comparison of the participation in the olympics of 1974/75 with the number of participants in preceding years it follows that in 1974/75 the participation in the first stage was much higher, but that the number of those who reached the higher stages of the contest was less than before (MOiW 1977; Kowalski 1978). This may be explained by a growing need for success in education among Polish pupils on the one hand, and difficulties of meeting these needs in a situation of deepening crisis on the other. Higher stages of the olympics were more expensive for participants and promoters because of the cost of travelling, food, lodging, etc. A limitation on the number of participants admitted to higher stages of the contest implied substantial financial savings. This direct economic reason was often hidden by the argument that olympics are only for the talented, as if talented pupils only come from some, especially urban schools.

In this way the olympics lost their function of discovering

pupils with outstanding talent, of heightening the level of knowledge of pupils from schools in the region, especially of children from a less privileged social background. This will be explored in more detail in the remainder of this study.

There were more girls than boys among the participants and among the winners of the olympics in Polish language, Russian language, and biology. At the olympics in other subjects, especially in subjects of science and technology, the proportion of girls was much smaller. In the olympic in mathematics of 1970/71, for example, only half as many girls as boys took part, although there were two times as many girls as boys in the schools. Among the finalists of that olympic was one girl to six boys. The proportion of girls among the winners of that twentieth olympic in mathematics was 5.8%, i.e. one girl to 17 boys (Bialecki 1975: 116). At the olympics of 1975-1977 there were 28.5% girls among the winners (MOiW 1977; Kowalski 1978).

4. Conclusions.

The information discussed here shows that there was an increasing number of participants in the competitions and olympics in school subjects. In time, the range of subjects was broadened to include the humanities. During the period of crisis there was a tendency to limit the number of participants at the higher stages of the contests.

The competitions and olympics were popular, particularly because they provided the finalists an entrance to schools of a higher educational level. Especially children from privileged social groups benefited from this opportunity. Rural pupils and children of workers or farmers had fewer chances of reaching the finals. The chance of winning the contest was also smaller for girls than for boys. Girls had their best chances at the contests in the humanities.

PART TWO

DETERMINANTS OF SUCCESS AT COMPETITIONS
IN POLISH LANGUAGE AND IN MATHEMATICS

VIII. METHODOLOGY

This introductory chapter to part two of the present study poses the research-problem of the empirical investigation on the determinants of success at the competitions in Polish language and mathematics for pupils in primary education. The questions to be answered by the research are formulated in a series of hypotheses.

This chapter further includes information about the field of the investigation, the research-population, the techniques applied, the research instruments (questionnaires), the subsequent stages of the investigation, and the elaboration of the data. The latter section concerns the assessment of the chances of reaching the finals of the competitions, the evaluation of the pupils' scores, and the methods of analysis. The chapter concludes with an evaluation of the whole project.

1. Research-problem and hypotheses.

Research on pupils who obtain good results in education has been rather rare. The neglect of such research has in capitalist countries been motivated by the assumed determination of these attainments by heredity and the fact that such attainments are typical for the economically privileged. In socialist countries it has been argued that everyone with at least an average IQ should have the opportunity to be successful in education. This ideology can be seen from the organization of the school system and from the official or hidden curriculum and teaching methods (van Wieringen 1977; Meijnen 1988), a problem dealt with in a separate study (Nakielska-Cremers 1985). In both socio-political systems each standpoint can be criticised on the basis of many research findings.

Social inequality with regard to the chances of success in education exists everywhere. This inequality can be reduced or increased by the educational system. It is to be expected that co-operation of the school with parents, pedagogists, and other schools (particularly those at a higher level) helps to reduce social inequality by improving the chances of success in education of children from a less privileged social background. The competitions in school subjects are an example of such

co-operation.

It is to be expected that competitions are especially helpful in overcoming inequality caused by a lack of stimulation of pupils in the school (due to unfavourable local conditions, the social composition of the pupils, poor qualifications of the teaching staff, a low standard of school equipment, etc.). The competitions might show the pupils new learning objectives, high standards of knowledge, and give opportunities of getting into contact and becoming friends with equally able pupils who have the same interests. The competitions can only fulfil this task when they are a spectacle open to everyone.

The competitions for pupils in primary education are to increase the pupils' knowledge and to prepare them for further study and competitions at higher levels (e.g. for pupils in secondary education or international meetings). Concern about heightening the standards of knowledge and levelling them up to an international scale becomes widespread.

The mentioned ideologies may have an important influence on the educational policy in some periods. It must be stressed that there are many different opinions on the chances of success in education among the less privileged in both social systems. The notion of self-reproduction of the elites predominated in socialist countries, e.g. in Poland at the end of the 1970s when social preferences for admission to university were abandoned. At the same time, in contrast, there was an egalitarian tendency in capitalist countries, where bursaries and loans free of interest made it possible for increasing numbers of the less privileged to continue their education at a university.

The educational situation of the less privileged improved steadily in both social systems. Nevertheless, improvements in the educational situation had not always a positive impact on the material situation and the prestige of persons from less privileged social groups.

In capitalist countries as well as in socialist ones it is postulated that each inhabitant must be given full human rights. One of these rights is the realization of educational aspirations. Investigations of persons successful in education belong to so-called politically delicate research. It is feared that such a research will interfere with the dominant ideology. Observations in countries with different political systems

assured the author of the necessity of a broader discussion on pupils who obtain outstanding success in education.

The material situation of the economically highly developed capitalist countries facilitates international contacts. The considerable growth of international traffic (tourism, trade, and cultural contacts) also increasingly effects the less privileged social groups. Improved education of these persons is needed for this traffic to be effective and for the image of their country. In times of temporary unemployment the aspirations of parents are often vested in the education of their children. Many of the well educated among the unemployed try to transmit their knowledge to their children. Among the less educated unemployed there is often the wish that their children will be better off, and therefore they stimulate them in education. The mass-media, especially television, and home-computers may stimulate them to develop their own educational aspirations. Some people who lack chances for success in other fields of life will compensate this by intensive study. Family planning made it possible to limit the number of births and this in turn facilitated the care of children and stimulated the parents' interest in their career.

Socialist countries are still a basis of cheap labour. There the need for highly educated specialists increases because they are capable of bringing production in line with the demand for sophisticated products from economically highly developed countries, that are the socialist countries' creditors.

Criticism of schooling and a more demanding attitude to education in both social systems is growing. There is increased pressure to extend the chances of success in education among the less privileged. There are still many problems to be solved in education. The present study shows one of the solutions that has been tried in Poland, expecting that it might be suitable in other school systems as well. In the present study it is assumed that the opportunity to be successful in education, especially for those from a less favourable social background, is an expression of of human rights and democratic principles.

This part of the study will be concerned with conditions for success in education, with special regard to the chances for persons from less privileged social groups. These conditions are studied on the basis of empirical research on the finalists

of the competitions in Polish language and mathematics in Poland in 1976.

Investigations on competitions in school subjects that have been done thus far in Poland make it possible to formulate several hypotheses, but they provide insufficient information to answer the problems of the present study. Either one kind of competitions has been investigated, e.g. the olympics in mathematics (Bialecki's study) or participants from regions that are probably hardly representative of the whole country, e.g. the investigations by Kowalski or Słyszowa. The information that can be found at the Ministry of Education often concerns but a few problems.

1.1. Hypotheses.

In the present study it is assumed that a pupil's chances of success at the competitions depend on social, pedagogical, and psychological factors. These may be divided in seven groups with regard to the major items of the research, viz.:

1. the competition (the organization, its subject);
2. the pupil's place of residence;
3. the pupil's family;
4. the pupil's orientation in life;
5. personal characteristics of the pupil;
6. the pupil's teacher-promotor (i.e. the teacher in primary school who taught and stimulated the pupil in the subject of the competition);
7. the school for primary education attended by the finalist.

The hypotheses about the relationship between the various factors and the pupils' chances of success at the competitions are the following.

1.1.1. The competition.

It is assumed that the competitions are:

- a. an opportunity for contacts between intellectually gifted pupils, who are often of various social origin and attending different schools;
- b. a chance for participants of overcoming the limitations of knowledge, experience, and culture resulting from their position in a given social structure;

- c. a spectacle contributing to the development of abilities and the reduction of social inequality.

The forming and educating effect of the competitions on pupils, especially on children from less privileged social groups, will be the larger when:

- d. there is already a tradition in organising competitions in the given voivodship;
- e. the schoolboard is very interested in the theme of the contest and makes the necessary preparations in good time;
- f. the participants' social background at the admission to a higher stage of the contest is taken into account, instead of selection on scores only (social preference);
- g. the competitions are stimulating for all those interested in the subject, instead of being an examination-like test without a wider audience;
- h. a recompense is given to participants and their promoters for the expenditures entailed (the cost of travel and stay, the purchase of materials);
- i. teacher-promoters, especially those of participants from less favourable social background, take part in the organization;
- j. the teacher-promoters are aware of the social determinants of their pupils' knowledge;
- k. the teacher-promoters are in favour of social equality.

1.1.2. Place of residence.

The pupils' chances of success at the competitions:

- a. increase, the more educational and cultural institutions are in their place of residence, and the higher the level of urbanization of that place;
- b. decrease with increasing distance between home and school;
- c. decrease with increasing distance between the place of residence and the capital of the province.

1.1.3. The family.

The pupils' chances of success at the competitions:

- a. are positively related to the parents' occupational level;
- b. are positively related to the parents' educational level;
- c. are negatively related to the number of children in the family (except in families lacking a parent);
- d. are better for oldest and youngest children than for children

in-between;

- e. are positively related to the number of books in the home library;
- f. are positively related to the quality of the pupils' place to do home-work;
- g. are negatively related to the time required for helping the parents;
- h. are positively related to the amount of free time.

1.1.4. The pupil's orientation in life.

Those pupils have more chances of success at the contests:

- a. whose interests are directed towards the subject of the competition or to related subjects;
- b. whose free time activities are mainly of an intellectual kind;
- c. who have collections of subjects that primarily serve their intellectual development;
- e. whose professional ambition is to have an occupation in the field of the subject of the competition at an academic level;
- f. who conceive success in life as the attainment of prestige by means of education, professional activity, or creativity.

1.1.5. Personal characteristics of the pupil.

Those pupils have more chances of success at the contests:

- a. who distinguish themselves among their class-mates by:
 - their knowledge of the subject of the competition,
 - competence in problem-solving,
 - a reliable and logical memory,
 - diligence and perseverance in the realization of tasks they undertake,
 - correctness and originality in oral statements,
 - aptitude at written formulation,
 - capacities of leadership,
 - ability to submit to others,
 - comradeship and helpfulness,
 - sense of humour;
- b. who have very good marks at school, especially for subjects in the field of the competition;
- c. who are denoted by their teachers as one of the most able pupils they have ever known;

- d. who have creative abilities, especially in the subject of the competition and related subjects;
- e. who have a level-headed and self-possessed temperament;
- f. who prepare frequently for the competition;
- g. who have no physical defects.

1.1.6. The teacher-promotor.

Those pupils have more chances of success at the contests, whose teacher-promotor:

- a. has a higher level of formal education;
- b. has longer work experience;
- c. is of higher age;
- d. is unmarried and has never been married;
- e. lives in a smaller family;
- f. has a separate room to study at home;
- g. has frequent study contacts with other teachers, especially in schools of higher educational level;
- h. has an appropriate workload, i.e.:
 - works neither part-time, nor too much overtime;
 - spends more time in activities with pupils outside of lesson hours;
 - spends less time in volunteer work out of school.

1.1.7. The school.

Those pupils have more chances of success at the contests, who attend a school that:

- a. is of large size (with regard to the total number of pupils);
- b. has a high standard of equipment, i.e.:
 - has resource rooms, especially for the subject of the competition,
 - has good library facilities,
 - has a reading room,
 - has a gymnasium,
 - has a club room, especially one run by full-time personnel,
 - has a canteen, particularly a canteen where warm meals are available,
 - is housed in a modern building;
- c. organizes activities for the pupils (such as circles of interest) outside of lesson hours.

2. The field of the investigation.

Research has been done at the finals in at least one subject in each of the 49 voivodships of Poland. Information was obtained from finalists, their teacher-promoters in primary school, their subject teachers in secondary school, and the organizers of the competitions in mathematics in 46 provinces and in Polish language in 45 voivodships.

The investigation included 93% of the intended population. The remaining 7% could not be investigated for the following reasons:

- annulation of the competition (one contest in mathematics and one in Polish);
- the competition was held earlier than planned (one contest in Polish);
- the organizers of the competition did not administer the questionnaires to the finalists, because they were ill, forgot it, or had no confidence in the research;
- the questionnaires had been administered, but the material was received too late to be included in the analysis.

Voivodships where finalists of the competition in mathematics could not be investigated were Ciechanów, Gdańsk, and Ostrołęka. Finalists of the competitions in Polish language could not be investigated in Bielsko-Biała, Częstochowa, Katowice, and Sieradz.

The number of finalists per voivodship varied between 11 (in Ciechanów, where only finals in Polish were held) and 1,165 (in Warsaw).

Besides the research on finalists, a similar investigation has been done at ten half-finals (one in mathematics and nine in Polish). This research on participants of half-finals has been provided in the voivodships Ostrołęka, Siedlce, and Suwałki.

3. Research-population.

Information was obtained on 4,995 finalists, of whom 2,637 took part in the competitions in mathematics, 2,071 in Polish language, and 287 did not mention the subject. Besides these more or less complete cases, there were 4% questionnaires in which basic information on the finalist was lacking. These cases

had to be excluded from the analysis.

The information on the half-finals concerned 338 pupils, including 34 participants in the half-final in mathematics.

Urban youth formed the majority of the finalists (3,652 pupils). The proportion of rural youth was 27% (1,343 pupils). Among the respondents at the half-finals the majority was formed by rural youth (244 pupils, or 72%). There were 94 pupils from towns at the half-finals.

With regard to their socio-occupational background, the majority of the finalists were children of employees (3,358 pupils, or 67%). The proportion of children of manual workers at the finals was much smaller (973 pupils, 19%) and children of farmers formed a small minority (361 pupils, 7%). Among the respondents at the half-finals were 158 children of employees, 67 of manual workers, and 108 of farmers. The larger proportion of farmers' children at the half-finals may be explained by the more agrarian character of the provinces where the half-finals were investigated, as compared to the whole country (the field of the investigation among finalists).

Information was obtained from 1,212 teachers who promoted finalists, including 444 teachers who promoted rural youth.

Data were gathered on 1,165 primary schools attended by finalists, among which 447 rural schools.

Opinions on 911 finalists were given by 777 teachers at secondary schools.

Opinions on the course of the competitions were obtained from 1,177 teacher-promoters and 93 organizers of the contests.

Data on school-marks and social background were gathered on 9,454 pupils, including 354 finalists, in the first grades of secondary school where the latter continued their education.

A characterization of the finalists was provided by their teacher-promoters, their subject-teachers in secondary school, and organizers of the competitions. This information only concerned some of the finalists. The information obtained from teacher-promoters included 29% of the finalists. This sample was fairly representative for the whole population, although the teacher-promoters of teachers' or farmers' children were somewhat overrepresented while those who promoted children of other employees were underrepresented. Table 1 presents a comparison of the finalists included in the sample of teacher-promoters

Table 1

Socio-occupational background and success at the finals among finalists about whom information was obtained from their teacher-promoters, in comparison to all finalists.

	Population			Included in the sample of teacher-promoters		
	number	%	SR	number	%	SR
finalists	4,995	100	14	1,450	100	12
of whom children of:						
teachers	1,033	21	20	369	25	30
other employees	2,325	46	32	565	39	28
manual workers	973	19	-18	272	20	-18
farmers	361	7	-47	123	9	-49

with all finalists, with regard to socio-occupational background and the scores at the finals. The latter have been indicated by the success ratio (SR), a measure to be explained in section 7. The scores of the pupils of the teacher-promotors in the sample were very similar to those among the total of finalists, except in the case of the teachers' children whose score was half as high again. The sample of subject-teachers in secondary school included 15% of the finalists. In this subsample were rather few pupils who obtained low scores.

4. Research techniques.

The following techniques were applied for the research:

1. a group interview among half-finalists and finalists, in the form of a captive audience (questionnaire I);
2. mail questionnaires for teacher-promotors, organizers of the competitions, finalists in secondary education, and teachers of the latter (questionnaires II-VIII);
3. observation of the course of 8 half-finals and 10 finals;
4. telephone interviews and direct interviews with organizers of the competitions and teacher-promotors;
5. correspondence with finalists, from whom 412 letters were obtained, and with teachers and organizers of competitions.

Ad. 1. Captive audience.

The questionnaire was introduced, explained and distributed among the finalists by the organizers of the competitions. This was usually done before the start of the contest. Some 10% of the organizers administered the questionnaire after completion of the contest tasks. In both cases the finalists were given half an hour to fill out the questionnaire.

The organizers of the competitions who took care of the group interview were given a small financial reward.

The finalists of three competitions obtained the questionnaires by mail, before the finals.

When the finalists' work had been judged, the organizers of the competitions filled in the scores in the space provided in the questionnaire or made a list of scores which they returned along with the questionnaires. In about one quarter of the cases the questionnaire contained no information on the score,

nor was a list of scores obtained. In the majority of such cases the necessary information could be completed later, after a written request, a telephone call, or as a result of direct contacts with the organizers of the contests.

At 12 competitions only the six winners were given marks; the other finalists were given equal scores.

Ad. 2. Mail questionnaires.

These were sent together with a stamped return envelope. Teacher-promoters and organizers of competitions who returned all questionnaires in time obtained a book as a reward.

Ad. 3. Observation of the course of competitions.

Attention was given to the circumstances in which the contest took place, the role of the contest committee, and the behaviour of the pupils and their interaction with the committee, their teachers, and other pupils. The observation was also intended to verify the way in which the captive auditory was provided, to assess the reactions of the pupils, to detect items in the questionnaire which caused confusion or which pupils and organizers did not understand.

Ad. 4. Interviews by telephone or in personal contact.

Telephone interviews with persons who organized contests or provided the captive audience took place a day before the competition or in the following week.

In problem situations the author arranged a personal visit to interview organizers who had promised in advance to help at the investigation. During these interviews the author gave additional instructions to the questionnaires, explained unclear items, and asked about the principles of the organization of the competitions.

Ad. 5. Correspondence.

Finalists, teachers, and organizers were in the course of the research project stimulated to provide the author with written information on certain questions, e.g. the functioning of competitions, troubles encountered by talented children at school and in personal life, teaching methods. These informants also expressed their views concerning the research project, the

interpretation of various questions, or the way in which the interviews were administered. As a result of this stimulation letters with such additional information were obtained from 412 pupils and 80 teachers and organizers. Whenever as the addresses of the senders were known, these letters were all answered.

The most interesting views of the pupils were to be published in the form of anonymous memoirs. However this plan could not be realized because the author was abroad for long periods.

5. Research instruments.

Eight different questionnaires were used in the course of the investigation. Two of these had to be filled out by the pupils, four by the teachers who promoted the pupils, one by the organizers of the competitions, and one by the teachers of the finalists in secondary education.

About 80% of the obtained data have been used for the present analysis. The rest of the information might be a subject for further research.

The various questionnaires will be described shortly.

Attention!

The roman numbers of the questionnaires will be used in the following chapters to number the tables.

Example: table VI-4a presents the answers to question 4a of questionnaire VI.

5.1. Questionnaires for the participants in the competitions.

I. "Auditory questionnaire for participants in the competition".

This questionnaire consisted of 33 questions, of which 29 were closed and 4 open-end questions. It included questions about the pupil's family, place of residence, school attainments, interests, and opinions.

II. "Questionnaire for finalists attending secondary school and their class-mates": 7 open-end questions on their situation in secondary school and some differences in teaching methods between primary and secondary school.

129

5.2. Questionnaires for the teacher-promoters.

- III. "Questionnaire for the characterization of the finalist": 13 closed questions, 3 open-end, and 2 half-open questions. It concerned psycho-physical traits of the pupil in comparison to such traits among the other pupils in the class, or among pupils known to the teacher. One question concerned the teacher's opinion on the influence of the competition on the finalist's interests and progress in learning.
- IV. "Information about the school": 32 questions of which 20 open-end, 6 open, and 6 half-open questions. It dealt with the size of the school, the availability of resource rooms and other specialized rooms, the level of education of the teachers, the functioning of the school, and the social composition of the pupils. This questionnaire was also sent to the teachers in secondary schools.
- V. "The education of talented pupils": 19 questions, of which 4 closed, 13 open-end, and 2 half-open. They concerned the existing facilities to educate the gifted and the teacher's opinion on this matter, changes in this respect that took place at school, and opinions on changes intended to favour the education of such pupils. Moreover, this questionnaire contained questions about the teacher himself, his opportunities for study, his situation at school and in the family.
- VI. "Competitions in school-subjects": 22 questions, of which 15 open-end and 7 half-open. They dealt with the way in which the promotor helped the finalist, the conditions under which the finalist was prepared for the competition, the principles for selection at the contest, the participation of children from various social background, good and bad points of the contest, and the teacher's opinion on these themes.

5.3. Questionnaire for the organizers of the competitions.

- VII. "The course of the competitions": 6 open-end questions dealing with the degree in which the finalists were prepared for the contest, their abilities, problems with the organization of the competition, and suggestions for the organizers of future contests.

5.4. Questionnaire for teachers in secondary school.

VIII. "Questionnaire for the characterization of finalists in secondary education". This questionnaire was similar to the "questionnaire for the characterization of the finalist" that was filled out by the teacher-promoters (III). In this case there were no questions on the competition.

6. Stages of the investigation.

The investigation was done in seven stages:

1. a pilot study in the form of research among participants in the half-finals;
2. research among the finalists of the competitions;
3. research among the organizers of the competitions;
4. research among the teacher-promoters of the finalists;
5. research among finalists and their class-mates in the first grade of secondary education;
6. research among the teachers in the subject of the competition in the secondary school;
7. correspondence with finalists about their further school-career and personal fortune.

Ad. 1. 1975.

December.

- Construction of the first draft of the questionnaire for participants in the competitions.
- Organization of the interview training for the pilot study.

1976.

January.

- Correspondence with 49 school superintendant's offices, in order to inform them about the investigation and to obtain precise information about the dates of the half-finals and finals, and to have a complete list of addresses of the organizers of the competitions.
- Correspondence with the organizers of the contests in mathematics or Polish, in order to obtain their help when performing the investigation.

February.

- Explanation of the way in which the interviews had to be

administered, of the interpretation of various items, etc. on behalf of the organizers of the competitions, either in direct contact, by telephone, or correspondence.

- Realization of the pilot study among participants in the half-finals.

Ad. 2. 1976.

February.

- Adjustment of the questionnaire to the remarks of the interviewers and those who observed the half-finals.
- Elaboration of the definitive interview instruction for the captive audience.
- Mailing of the questionnaires to the organizers who agreed in providing the captive audience.

March - April.

- Telephone calls and direct contacts with the organizers. Realization of the captive audience.

July - September.

- Correspondence and direct contacts with the organizers of the contests, in order to complete the information about the scores.
- First description of the research findings (Nakielska 1976).

Ad. 3. 1976.

January - March.

- Preparation and mailing of the questionnaires for the organizers of the competitions.

Ad. 4. 1977.

January - March.

- Preparation and pretest of the questionnaires for the teacher-promoters of the finalists.

April - May.

- Mailing of the questionnaires to the teacher-promoters and correspondence with them.

June - July.

- Formation of the data file.
- Completion of the questionnaires with information about the finalists.

1978.

January - March.

- Coding of the questionnaires and the checking the coding.

April - May.

- Punching and control.

June - August.

- Analysis of the data on a EMC Odra 1305 computer, using a high order language (COBOL).

Ad. 5. 1978.

May.

- Construction of the questionnaire for finalists and their class-mates in secondary school.
- Pretest of this questionnaire among finalists in the voivodship Ostrołęka.
- Mailing the questionnaires to the finalists.

Ad. 6. 1978.

June.

- Mailing the questionnaires to the teachers of finalists in secondary school in the subject of the competition.
- Analysis of the investigation.

Ad. 7. 1977 - 1979.

- Correspondence with finalists.

7. Elaboration.

As it has been argued already, success at the competitions has been measured by:

- the chances of reaching the finals, and
- the chances of obtaining high scores at the finals, rather than low ones.

7.1. The assessment of the chances of reaching the finals.

The chances of reaching the finals were estimated on the basis of a comparison between the number of pupils with a given trait who completed primary education in the year of the competitions and the number of finalists with the same trait.

In fact the chances of reaching the finals, either in Polish or mathematics, were somewhat smaller, because not only pupils in the highest grade of primary school took part in the contests, but pupils in lower grades as well. The proportion of the latter among the finalists was 4.8%. Very few of these pupils from lower grades scored high or low at the finals (less than .1%).

7.2. Evaluation of the scores at the finals.

High scores at the finals expressed outstanding qualities of the pupil, the fulfillment of most conditions specified in the interpretation of success.

Low scores at the finals expressed failure in the attempt to achieve the label of best finalist. This is not to say that finalists with low scores were unsuccessful at the competitions: it has been stressed that it was already a great success to be admitted to the finals. Finalists who obtained high scores had more profit from the competitions (admission to the school of their own choice, more valued prizes, and the like) than those with low scores.

In order to obtain a more distinct understanding of the conditions for success at the finals, finalists who obtained middle scores were not taken into account in the analysis of the chances of success at the finals.

In the analysis of determinants of success at the finals, use has been made of two indicators of the level of success which will be indicated as the 'success ratio' (short: SR) and the 'success quotient' (short: SQ). Both indicators are computed on the basis of the number of high scores (HS in the formula) and that of low scores (LS).

The formula for the success ratio is:

$$SR = 100 \times (HS - LS) / (HS + LS)$$

It can be seen from this formula that the success ratio indicates the relative preponderance of high scores over low scores. The success ratio may vary between +100 and -100. In the first case it indicates total preponderance of high scores: in that case there are only high scores, no low scores. The ratio is -100 when there are only low scores.

The success ratio is intended to facilitate the comparison

between the number of finalists with high scores and those with low scores. The ratio is mentioned in most tables. In the description of the findings it is often referred to by the clause: "The chance of scoring high rather than low".

The formula of the success quotient is:

$$SQ = HS / LS$$

The success quotient shows how many more finalists of a given category obtained high scores, compared with those who scored low. The success quotient facilitates the comparison of the chances of success between two or more categories of finalists. By dividing the success quotients of each of these categories of finalists it can be seen how much better a certain category of finalists scored than the other group.

Example:

The success quotient of finalists whose parents are university graduates is 2.4 and that of finalists whose parents have primary education is 0.6. Division of the former success ratio by the latter leads to the conclusion that children of graduates score four times better (2.4 divided by 0.6 is 4) than children of those with primary education.

Both indicators for success at the finals are based on the number of finalists with high scores and that of finalists with low scores. It can be seen from the formulas that the success quotient can be derived from the success ratio:

$$SQ = (1 + SR) / (1 - SR)$$

The success ratio and the success quotient have not been computed when the total of finalists with high scores and those with low scores was less than 30. In such cases the absolute numbers of high and low scores have been mentioned instead. These numbers are given in the column of the success ratio in the table. They are separated by a vertical line.

12|8 in a table indicates that there are 12 finalists in the given category with high scores and 8 with low ones. The total of high and low scores is 20.

When the reader wishes to compare this category of finalists with another category, and considers a total number of 20 finalists sufficient for an indication of the chances of success, the success ratio may be computed (here: $SR = 100 \times (12-8) / (12+8) = .2$) as well as the success quotient (here: $SQ = 12 / 8 = 1.5$).

The information in the tables is given in absolute numbers for the totals and in percentages for the various categories of the variable under study. Some data are presented in graphs.

7.3. The structure of the presentation of the findings.

The analysis of the data and the discussion of the results usually follow the same pattern.

1. When sufficient information is available (e.g. census data) and the variable under study is expected to be highly relevant to the chances of success (e.g. the finalists' place of residence or their socio-occupational background), the chances of various categories of pupils of reaching the finals are presented.
2. The distribution of the sample over the various categories of a variable is given in percentages. When the table presents information concerning the finalists, the distribution of the variable is also given for the finalists with high scores and for those with low scores.
3. Concerning the chances of success at the finals, the chances of scoring high rather than low are presented for the subsequent categories of a variable. This is done by means of the success ratio and/or the success quotient.
4. If relevant, the influence of the variable on the chances of success at the finals is further analysed under the control of the finalists' local background.
5. Similarly, the chances of success at the finals are analysed keeping the finalists' socio-occupational background constant.

7.4. Analysis.

The analysis of the data has been done via an analytic-synthetic approach and a synthetic one.

7.4.1. The analytic-synthetic approach.

This consisted of the analysis of subsequent social, pedagogical, and psychological determinants of success using the success ratio as a measure of their relevance. The general relation between these determinants and success at the finals was further evaluated under control of the influence of place of residence, socio-occupational background, or sometimes gender or the subject of the contest. Thus it was tried to answer the question whether the given factor or one of the presumably

strongest determinants of success had more influence on the scores at the competitions.

The results of this analytic-synthetic method of analysis will be presented in the chapters XI to XVI.

A characterization of the finalists had been made both by teacher-promoters and by teachers in secondary education. The reliability of these characterizations has been evaluated on the basis of a sample of 90 finalists, including 30 pupils of each socio-occupational category (employees, manual workers, and farmers). Two variants have been considered:

- the opinions of both teachers have been compared for each pupil separately;
- the opinions of the promoters have been compared with those of the teachers in secondary school for the sample as a whole.

The results of both analyses were almost identical. It has been decided therefore, to apply the latter variant only for further analysis (chapter XIII), thus taking advantage of the fact that the effect of extremes is diminished in larger samples.

7.4.2. The synthetic approach.

Some readers might be more interested in a synthesis of the research findings than in the discussion of the results of the analytic-synthetic analyses. In order to meet their demand for a brief description of the major relations under study, two synthetic analyses have been made.

The first synthesis was made by the formation of cumulative indices for main groups of determinants of success. In this way the findings of the relations between several factors and the scores at the finals could be summarized. These indices also permit a further investigation of the expected cumulation of positive conditions.

Cumulative indices were formed for the following groups of determinants of success:

- conditions for study at home;
- interests;
- quality of the primary school.

Each index was the weighted sum of the scores on three or four important variables. Favourable conditions for success were indicated by a low score on the index. Thus a negative relation was to be expected between the score on the index and success at

the finals. Missing cases were deleted listwise.

The second synthesis consisted of Goodman's ECTA (Goodman & Fay, s.a.; Gadourek 1976), an analysis specially designed for qualitative data. ECTA has been applied on the information on finalists and their class-mates in the first grade of secondary school, in order to evaluate the influence of important factors on performance in secondary education. The data were included in a six-way contingency table with the following variables: school-marks, subject field, gender, place of residence, socio-occupational background, and success at the competitions. The subject field (Polish language - humanities, or mathematics - science), gender, and success at the competitions (having reached the finals or not) were dichotomous variables. The other variables have been dichotomized on the basis of the findings of the analytic-synthetic analyses.

ECTA is a log-linear method for the analysis of contingency tables. It can be seen as a non-parametric approach to the analysis of variance or multiple regression. The analysis consists of the prediction of cell-frequencies. The result is a formula similar to that in multiple regression. Cell-frequencies are predicted by the grand mean and the effect of the subsequent (combinations of) variables. When the 'effects' are taken twice, the results are the beta-coefficients of the regression of the cell-frequencies on the subsequent (combinations of) variables. Besides its non-parametric character, ECTA has the advantage that it can be applied to cross tables of high order (here a six-way table) and may include all possible interactions (or combined effects) between the variables.

It is a good practice to use the method to test models in which the effect of certain (combinations of) variables is controlled. In that case the analysis heavily relies on the application of chi-square to test the goodness of fit. This has two important limitations. First, the expected frequencies in all cells must be sufficient for the computation of chi-square (a rule of thumb is to require a minimum of five). The second limitation of model testing by means of the chi-square test of the goodness of fit is the capitalization on chances, by repeated computation and iteration in the analysis.

Both limitations are especially important for the application of ECTA in the present study of outstanding success in

education. The minimum expected frequency of five cases in each cell of a contingency table with six dichotomous variables can normally be obtained in a sample of some thousand cases. When more variables are to be included, or when the variables have more than two categories, the number of cases must be much larger. This is the reason for dichotomization of the variables. The number of cases included in the analysis is 9,454. On a first glance this might seem large enough, but nevertheless the expected frequencies are often hardly more than the minimum of 5 needed for the analysis. This is due to the fact that the study includes an exceptional group of pupils: the 3.7% who succeeded to reach the finals.

With regard to this specificity of the sample it appears very hazardous to capitalize on chances. Model building would only be justified when the most interesting variable (i.e. success at the competitions) would be excluded from the analysis. For this reason it is also risky to construct scales for the subsequent variables and to apply a parametric form of multiple analysis: the finalists find themselves mostly on an extreme of the scale.

Rather than for model testing, ECTA has been applied here as a comprehensive analysis of the interrelations between the six mentioned variables. It must be remembered that the intention of this analysis was to achieve a synthesis of the main results of the analytic-synthetic analyses. For this reason the saturated model of analysis has been chosen, i.e. prediction of the cell-frequencies on the basis of all (combinations of) variables in the analysis (including all interactions).

The results of the synthetic analyses will be presented in chapter XVII.

7.4.3. Evaluation of the results of the analyses.

Important sources of information, which added much to the evaluation of the results of the analyses, were the explanations and remarks of the respondents to their answers to the questions in the questionnaires and the letters the author received. Following the opinions of many experienced sociologists (Coleman 1964; van Heek et al. 1976; Albinski 1967, 1969, 1981; Gadourek 1982) these statements of the respondents have been taken seriously.

A quick impression of the main results of the analyses can

be obtained from the graphs and schemes.

The research findings will be discussed critically. Where possible, explanations will be sought in hypothetically probable conditions. In this way hypotheses and suggestions for further research on controversial or insufficiently known matters will be formulated.

8. Evaluation.

The investigation created much interest among the pupils who took part, their teachers, and those who organized the contests. This interest was expressed in the enthusiastic answers to the questionnaires, that were full of particulars, and in the numerous requests for further information about the items of the interviews. Probably the time of the investigation (immediately before, during the contest, or shortly after awarding the scores) contributed to this vivid interest.

The teacher-promoters of the finalists were especially grateful for the books with a dedication, and the letters of thanks for having accurately filled out the questionnaires and their effort to lead their pupil to the finals of the contest. For some teachers this were the only thanks they obtained for their effort.

The organizers of competitions were interested in the way the contests in other voivodships were organized, and in the solutions of certain problems of management that had been developed elsewhere.

The questionnaire sent to the teacher in secondary school was for many finalists the only documentation of their success at the competition that reached their teachers in secondary education. The questionnaire drew the teachers' attention to the special interests of the finalists. Many teachers were thus stimulated to promote the further development of their pupils' abilities.

The questionnaires were given a lay-out not to discourage the respondents with its size. That for the captive audience was of a small format (A5) printed on both sides; the questionnaires for teachers and organizers were on one side of a normal sheet A4 (Pilch 1971). The instruction guide stipulated short answers and not to worry about style.

Telephone calls and direct contacts with the organizers of the competitions were very fruitful for the research. As a result of these contacts, unwillingness and doubts about the purpose of this investigation and its impact on the evaluation of their work could be overcome. The organizers usually were employees of the school superintendant's office: methodologists in the subject of the competition.

Lists of the finalists made by the author on the basis of the questionnaires and sent to the organizers were very useful for the completion of information about the scores. The use of addressed reply envelopes and the preparation of the answers in the questionnaires for the organizers, so that they had to fill out only a few data, was also very effective. In order to avoid unnecessary costs in the case of no return, the reply envelopes were stamped: "Addressee pays the charge".

When a teacher occurred to be the promotor of more than one finalist he often asked for more copies of the questionnaire, copied it himself, or filled the information in on a separate sheet. In this way many questionnaires were obtained about finalists who did not mention the name and address of their teacher-promotor.

Major problems in the research project were related to the acquisition of licences and of funds to pay those who assisted in the project. Formalities absorbed a great deal of the energy invested in the realization of the project.

Another important problem was repeated errors with the punching of the data. This made steady control indispensable. The computer language (COBOL) proved to be less suited for the analysis of such a big data set.

The writing of the final version of the report was severely hindered by the author's stay in the Netherlands, where new scientific experiences were often essentially different to those she had at the time of planning this research project. All these troubles considerably delayed the publication of the results. It is to be hoped that the acquired experiences will be fruitful in further scientific work on this and other subjects.

IX. COMPETITIONS FOR PRIMARY SCHOOL PUPILS in 1975/'76.

The competitions in Polish language and mathematics have been investigated three years after their legal approval. In several older voivodships competitions had been organized for a long time. In the voivodships Warsaw and Szczeciń the investigated contest in mathematics was already the twentieth in succession; in the voivodship Katowice it was the eighth.

Contests in Polish language and literature were introduced later than those in mathematics. In the new voivodships, that came into existence as an outcome of the reform of government administration in 1973, competitions had been organized since that year, i.e. since the legal approval of the contests. Some new voivodships began to organize competitions one or two years later, or had not yet organized competitions at the time of the investigation.

Organizers stated that the contests awoke much interest among teachers, pupils, and parents. This was expressed in the demand for more pupils to be admitted to the finals, as well as in the large numbers of observers and fans who - often at marked cost - came to see the competitions. Pupils were interested in the themes. Long before the contest the teachers already asked for complementary material. Work that had been done at the lower stages of the competitions and work that the pupils wrote at the finals aroused much interest among groups of pupils, who used it for private study, and among teachers.

1. Selection-principles.

It followed from the answers of the teacher-promoters that there were different principles of selection at the competitions in the various voivodships (see table VI-8).

1.1. Applied principles.

The most frequently used principle to decide who was to be admitted at the finals (69%) was the attainment of a given score. This implied that perhaps none or rather few participants met the criterion of the competition, hence qualified for the

finals.

The second selection-principle with regard to the frequency of its application (27%) was the admittance to the finals of a fixed number of pupils who obtained the highest scores at the regional competitions. The number of finalists was established by the school superintendant. When there were more participants at the regional competitions who were well prepared, often some of them could not be admitted to the finals. It sometimes happened that the organizing committee had to draw lots to select one pupil out of several candidates with the same score.

The third and the least frequently applied selection principle (3%) was selection of candidates with preference for pupils from certain social groups: manual workers and farmers, the rural population.

No information was obtained about the selection-principles applied at the rest of the competitions (1%).

1.2. Effects and implications of the chosen principles.

Preferences for certain groups of pupils for selection to the finals led to considerably improved chances for such pupils. At competitions where such preferences were given the number of farmers' children who reached the finals was more than one and a half time as large as at other contests. The number of children of employees and of manual workers, however, seemed hardly to be affected by such preferences.

It can be estimated that the few cases in which preferences were given led to a 2% increase of the number of farmers' children at the finals. The other selection principles were even less related to the chances of pupils from different social groups of reaching the finals. When the actual numbers of finalists of different social background were compared with the numbers that could be expected, with regard to the method of selection, the differences were found to be negligible ($\chi^2 = 6.65$ with 6 degrees of freedom).

It might have been better for the objectivity of the research, had the same selection principle been applied at all contests. This was not the case: a fact that could not be influenced by the author.

The finding that the relation between the applied principle of selection and the proportions of pupils from different social background at the finals was statistically insignificant, was one reason to leave the selection-principle out of consideration in the further analyses of the data.

The second, more important reason to do so was the fact that the difference was irrelevant from a theoretical viewpoint. The evaluation of intellectual capacities - especially creative ones - is always subjective. A leaving certificate from one school does not mean the same as such a certificate from another. A very good mark given by one teacher is not the same as that mark given by another. Two persons with a master's degree do not have identical scientific capacities.

When success at the competitions is described here as a social phenomenon, more attention must be paid to the fact that a number of specialists appreciate an attainment than to their criteria for that approbation. Each of the specialists may evaluate a different aspect of ability. The point is that the evaluation is done on the basis of definite norms and information with concern for the standards of perfection, which are accepted by others as well.

This can be illustrated by reference to olympic games.

One group of arbiters judges the long jump, another group the high jump. In both cases the judgement depends on information about attainments in the given field thus far, and on the standards as these are set at the game itself (played under specific psycho-social, local, and atmospheric conditions). The criteria for the long jump and the high jump are different. Nevertheless, both groups of arbiters are entitled to set both kinds of winners on the same pedestal.

At the competitions, successes in different fields of knowledge are evaluated in a similar way.

For those pupils whose knowledge was differently oriented or less than the level expected by the organizers, the selection principle most frequently used - that requiring the obtainment of a given score - was unfavourable. In cases of application of either the first or the second selection-principle, pupils from urban schools and youth from privileged social groups had the best chances of reaching the finals. Rural youth and children with an unfavourable social background had better chances at contests where preference was given to them, i.e. in the case of application of the third selection-principle.

1.3. The teacher-promotors' preference.

The promoters of the finalists have been asked which selection-principles they themselves preferred (see table VI-8).

The principle of qualification on the basis of the scores at lower stages of the competition, was more frequently applied than the promoters would have liked. The promoters of employees' children were the most in favour of this principle (62.6%). It was preferred somewhat less by the promoters of workers' children (60.1%) and the least by those of farmers' children (53.6%).

The second selection-principle, i.e. the admittance of a fixed number of the best participants to the finals, was also more frequently applied than the promoters would have liked. This principle was preferred by 21.2% of the promoters, irrespective of their pupil's social background.

The third selection-principle, based on social preference, was applied less than half as frequently at the provincial competitions than the promoters would have wished. It was considered to be the best principle, mainly by promoters of farmers' children (13.1%). The proportion of the other promoters who preferred this selection-principle was half as large: 6.4% among the promoters of the children of employees and 7.3% of those who promoted workers' children.

A majority of those promoters who were in favour of social preference at the selection for the finals of the competitions, would have preferred a system in which participants from less privileged social groups were given preference by means of additional score points. Another form of social preference was admittance to the finals in proportion to the social composition of the schools or grades. Most promoters in favour of that method thought it right to prefer children from a less favourable socio-occupational background: workers' or farmers' children. Half as many of these promoters would give preference to children with an unfavourable local background: pupils living in traditional villages.

Very few promoters were in favour of social preference for girls. In the light of the teacher-promotors' experiences, the girls probably came up to the same standard as the boys, hence additional preference would not be needed.

Both the present investigation and research by other authors showed that girls did better than boys in primary education and in several forms of secondary education. Among university graduates, however, there were more men than women. A majority of girls could also be noted at various competitions and olympics in school subjects. At the contests in Polish language that were subject to the present study, for example, girls predominated, both numerically and with regard to their scores (see table I-2).

1.4. Social preference versus merits.

The promoters of the finalists have been asked whether the participation of farmers' and workers' children at the finals of the competitions would have to be increased, even when their scores did not meet the limit (question VI-12). A majority of the teacher-promoters (60.3%) was against such an increase. Only one third were in favour of such a measure. A positive attitude to an increase of the participation of these children was the most frequent among the promoters of farmers' children (45.7%). The proportion of those in favour of such a measure among the other promoters was much lower: 34.6% of the promoters of workers' children and 30.1% of the promoters of employees' children.

2. Scores at the finals.

This section deals with the scaling of scores at the finals and the distribution of scores. The latter is discussed with regard to the subject of the competition, i.e. mathematics or Polish language.

2.1. The scaling of scores.

The range of possible scores varied between the voivodships. The number of marks could vary from 3 to 60. For the present analysis the marks had to be regrouped into three main categories: high, middle and low scores. In this section each of these categories is divided into two subgroups, so that six scores can be distinguished. When at the competition only three

marks were given the highest mark is counted here as score 1, the middle mark as score 3, and the lowest mark as score 6.

In the analysis of the variables that are expected to have an influence on the chances of success, the highest category (scores 1 and 2) is compared with the lowest (scores 5 and 6). Pupils with scores 3 or 4 are excluded from that analysis, in order to get a sharper idea of the chances of success. In the analysis of the chance of attaining the finals, and when the frequency-distributions on the subsequent variables are given, all pupils are of course taken into account.

2.2. Scores and the subject of the competition.

From table I-6 it can be seen that the proportion of high scores was the same among the finalists at the competitions in mathematics and in Polish language. Middle scores were somewhat more frequent at the contests in mathematics and low scores more at the competitions in Polish language.

It may be hypothesized that the finalists in the contests in mathematics were more evenly prepared for the contest than the participants at the finals in Polish language. It might also be that the criteria for judgement at the finals in Polish were less precise and therefore the highest and lowest scores were more probable. Such hypotheses can only be tested by further research.

At the finals in mathematics the scores 1 to 4 were the most frequent: 17-18%. The score 5 was given somewhat less (16.3%) and the score 6 was given half as often (7.9%). Thus, high and middle scores were equally frequent and low scores were given less.

At the finals in Polish language high scores were also the most frequent (score 1 18.9% and score 2 16.4%). The category of scores that was next frequent were the low scores 5 and even more 6 (11.7% and 17.6%). The middle scores 3 and 4 were given less (13.7 and 11.0%).

3. Causes of unequal chances.

The teacher-promotors were asked what in their opinion are the causes of unequal chances of success at the competitions

(question VI-11).

Less than half of the promoters felt that social factors were the cause of unequal chances. They explained the smaller representation of pupils from less privileged groups as being caused by the low educational level of the parents, a larger number of children in the family, bad housing conditions, overwork, few free time, and the childrens' occupation with work in the household or in their parents' business. Such explanations were much more often given by promoters of farmers' children than by promoters of children of workers or employees.

More than one third of the teacher-promoters attributed the inequality of chances to laziness, a lack of interest in learning, or an orientation on other spheres of life. Such causes were the most frequently mentioned by promoters of the children of employees, somewhat less often by promoters of workers' children, and the least frequently by promoters of farmers' children.

Inherited factors were the third group of causes mentioned. It was stated that children born from less privileged groups would be less able, would have a lack of imaginativeness, fantasy, reaction-speed, would allow others to exclude them easily, would be credulous, not very critical. Such opinions were somewhat more frequent among promoters of finalists in Polish language than in mathematics. The proportion of those who held this view was three times as large among the promoters of children of workers or employees as among the promoters of farmers' children.

To argue the need for increased participation in the competitions by workers' and farmers' children, promoters stated that the competitions are a training for other school-success and give opportunities for the formation of abilities, to get in contact with equally able peers from other schools, and to exchange opinions. Those teachers who thought it unnecessary to augment the number of workers' and farmers' children at the competitions argued that: the contests ought to be a spectacle for the very best only, the level of knowledge must be the only criterion for admission, there must be no room for participants intellectually and socially undeveloped, the competitions must be reserved for the real intellectual elite of a school, and workers' and farmers' children have no much educational

aspirations, hence unnecessarily take places away from those to whom the contest would be helpful to their future school career.

3.1. Meritocratic attitudes among teacher-promoters.

It follows from these opinions that many Polish teachers who distinguished themselves in their pedagogical work had meritocratic attitudes. Even among the promoters who were aware of social barriers to obtaining an equally high intellectual level there were quite a few who thought that pupils living in the worst circumstances could nevertheless prepare themselves properly for the competition. Some promoters presumed the privileges of various social groups would be irrelevant.

Such meritocratic views were just as often held by the promoters of children of employees as by those who promoted workers' children. Only among the promoters of farmers' children there was more awareness of social inequality.

It is to be expected that workers' families did not differ much from the families of employees, with regard to their material circumstances. Some groups of manual workers in Poland lived in better material circumstances than average employees, including teachers (Cremers 1980). The most important difference between both socio-occupational groups was in the non-material sphere: educational level, life-orientation, and other factors with a marked influence on the chances in education but difficult to detect for an unexperienced observer. Material and cultural distress was probably the most frequent in farmer's families.

It may be hypothesized that differences in the way teachers designated the causes of a low participation of workers' and farmers' children in the competition resulted from differences in the familiarity of the teachers with these circles. In the present research project it has been found that teachers of farmers' children had the best knowledge of their pupils' family environment. Promoters of children of employees were much less familiar with their pupils' families and it was the least among promoters of workers' children.

The teachers of children of employees, especially those who lived in towns, had their friends and acquaintances mainly among employees. The promoters of farmers' children tended to mix with

the peasant families, because in villages there were often no other social groups. The distance from shops urged these promoters to buy their food directly from the farmers. The distance from cultural centres stimulated them to shape cultural life in the village. At these and similar activities, the promoters of farmers' children had the opportunity of observing peasant life. It was probably for that reason that the opinions of these promoters were more profound and better testified than the opinions of the promoters of other children.

4. The promoters' evaluation of the organization.

The teacher-promoters were asked several questions to evaluate the organization of the competitions.

4.1. Opportunities of getting acquainted with others.

One of these questions was whether the competitions gave the opportunity of getting acquainted with others involved and to exchange knowledge and opinions.

Most promoters considered the competitions a good occasion to make acquaintances and to exchange thoughts and opinions. Only one promotor out of ten felt that the competitions did not fulfil this task.

The competitions turned out to be very fruitful for the teachers to get in contact with colleagues (27.1% of the respondents did so). This opportunity resulted from the way in which many competitions had been organized: at the time that the pupils worked on their contest-paper, the promoters had time to have tea together and to talk. Almost equally often the contests stimulated contacts between pupils (25.7%). Relatively less opportunity was given for contacts between pupils and teachers (14.1%).

In many cases the teacher-promoters were not involved in the organization of the competition.

4.2. Stimulation of contacts.

The teacher-promoters were also asked what factors helped mutual contacts and what hampered it.

- Both teachers and participants considered the themes, the questions of the competition, the most favourable factor (19.8% of the promoters).
- The second factor was the spare time the pupils had during the oral part of the competition, and that the promoters had all the time of the contest (13.6%).
- The third stimulating factor were the social facilities, i.e. common travel, meals, and shelter (4.6%).
- The factor that was mentioned the least was the entertainments that accompanied the competitions, e.g. excursions, parties, discussions (2.3%). Such entertainment was organized at only a few competitions.

The promoters of children from different socio-occupational background answered similarly to this question.

Factors that hampered mutual contacts were:

- unkindness of those who organized the contests, the hurry and nervous atmosphere they created (13.6%);
- a lack of time, the fact that the contest lasted but one day (7.9%);
- a lack of entertainment (7.0%);
- a lack of space for the promoters, both in the contest room and outdoors (5.7%);
- unwillingness of pupils and teachers from urban schools to make contact with those from the countryside (5.6%);
- bad social provisions, e.g. lack of meals or shelter (4.4%).

In comparison to the promoters of other finalists, the promoters of farmers' children rather often mentioned such hampering factors as: lack of social provisions, lack of entertainment, an unwilling attitude of persons from towns to make contact with those from the country.

4.3. Valuable aspects of the competitions.

The teacher-promoters were asked to indicate what were the especially valuable aspects of the competition.

The inspiring themes and questions posed at the contests were mentioned the most frequently (63.1%). Few promoters valued the competitions positively for good organization (15.0%). The educational aspect was stressed by 7.7%. The fact that new acquaintances were made was mentioned as an especially valuable

aspect of the contests by only 4.0% of the respondents.

The educational aspect of the competition was more often valued by teachers of farmers' children than by the other promoters. Other positive aspects were mentioned less frequently by the former.

4.4. Information about the competition.

On the question as to whether enough information about the competitions had been provided in advance, more than half of the teachers gave negative answers: 39.2% described this information as not very precise and 17.7% felt it was insufficient. One promotor out of three (31.4%) answered that full information had been obtained.

The way in which such additional information was obtained was via a telephone-call or correspondence with the organizers of the contest (25.7% of the promoters mentioned this method). Others (22.8%) obtained additional information at meetings on the organization of the competition. Additional information was obtained by 11.1% of the respondents in direct contacts with the organizers. Such information was gathered in an indirect way by 16.7% of the promoters, who were informed by teachers of other schools, the director of their school, parents of their pupils, etc. 20.3% of the respondents got no additional information.

Promoters of children of employees more often obtained additional information about the competition in direct contact with the organizers than other promoters. Teachers of workers' children got that information more often at meetings, and the promoters of farmers' children got it relatively often by telephone or letter or from third persons.

4.5. Proposals for improvement.

The final question to the promoters on their evaluation of the organization of the competition was, whether they had proposals for improvements (question VI-20).

The most frequently given answer to this question was that the promoters of the participants must be engaged in the process (35.6% of the promoters did this proposal).

A less frequent opinion was that the competitions had to be

more educational for the pupils (14.9%). This could be obtained by the admittance of all participants to the oral part of the competition, and by including promoters and other observers in the audience.

One promotor out of nine thought it necessary that the opinions of the committee evaluating the participants' work must be more objective (10.9%). To this end, teachers from schools other than those of the participants would have to be included in that committee.

Few promoters thought it necessary to have more attractive prizes (6.8%):

"The competition must give the finalists entrance to the secondary school of their choice."

"The prizes for the winners must be more useful."

"The winners of the competitions deserve to be well cared for."

A prolongation of the duration of the contest was proposed by 2.9% of the respondents. Improvements of social provisions for pupils and promoters were demanded by 2.7% of the promoters. Proposals that were less frequently mentioned were improvements of the tasks and questions at the contest (2%), and fuller and earlier information to the participants and their promoters about the requirements of the contest and about accompanying entertainment (1.3%).

These proposals were mentioned somewhat more often by promoters of employees' children than by other respondents. The promoters of farmers' children made somewhat fewer remarks. The differences between these groups of promoters were small: one or two percent points.

5. Summary.

The competitions in school subjects were highly valued by pupils and teachers alike.

The organization of the competitions in school subjects was slightly different in the various voivodships. One of the differences were the principles of selection of participants to be admitted to the finals. The most often used principles of selection were: attainment of a given score, and admission to the finals of a fixed number of the best participants. Social preference was given rarely.

When the teacher-promoters would have to decide about the selection-principles to be applied at the contests, one out of three would introduce social preferences. One promotor out of ten was in favour of preferences for rural youth. The adherents of social preferences were mainly among the promoters of farmers' children. There were less of them among those who promoted workers' children, and the proportion of adherents was the smallest among the promoters of children of employees.

Social causes of unequal chances at the competitions were most often noticed by teachers of farmers' or workers' children. The promoters of employees' children were ready to attribute failure to a lack of ability, laziness, or a lack of educational aspirations.

The promoters considered the themes and questions of the contests to be the greatest merit of the competitions. These were a real intellectual adventure for pupils and teachers. An examination-like character was stressed as a fault of the competitions.

It must be remembered that no direct profit could be gained by participation in the competitions. At best, there were small prizes to be won. In examinations there usually is much more at stake: admission to a desired school, a leaving certificate, etc. Their interest in the subject, their wish to learn, to measure and compare themselves with others was for most pupils the major reason for taking part in the contests. At examinations, extrinsic values are probably of much more importance and even dominant.

Examinations are usually held in a closed session of examiner(s) and pupil. Most competitions were held in the presence of an auditory. Participants, other pupils, teachers, parents, and others interested in the contest could hear what was asked and answered. In this way everybody could try out the own strength and evaluate the own attainments and weaknesses.

Most promoters would like to see the competitions as a formative and educating spectacle, both for the pupils and for their teachers. Part of the promoters demanded an extension of the audience for all those who are interested in the contest, so that the competitions would become a typical festival for fans of Polish philology, mathematics, or other school subjects. During this festival the participants might demonstrate their

attainments in a given field of study. This would favour the extension of knowledge of that discipline among less interested persons, and it would be helpful to find new amateurs in that field of studies. Some competitions had the character of a fixture, indeed, an event at which talents were sought and developed. However many contests were limited to an examination-like meeting.

From the reactions of most promoters it followed that they had meritocratic attitudes. In their opinion the festival of a given subject would have to be organized by the social elite, especially the intellectual elite of the schools; those who had achieved a sufficiently high level of knowledge. A rather small minority of the promoters would like to include pupils from less privileged social groups in the competitions, in order to give them a chance of getting in touch with knowledge and requirements at a high level. Some of the promoters pleaded for the preparations before the competition to be broadened by common meetings with pupils from other schools.

Most promoters considered the competitions to be a good opportunity of getting in contact with teachers and pupils, and exchanging knowledge and opinions. It was stated that the contests stimulated well-mannered behaviour and trained the competitors to cope with difficulties.

The themes and questions of the competition were considered the most stimulating to get acquainted with others, because these themes were fascinating and encouraged discussion. The way in which the competitions were organized favoured mutual contact (among other things, by giving teachers and finalists some free time). Especially during the meals, lodging, entertainment, and travel, contacts could be made.

Hindrances for these contacts were: a nervous atmosphere caused by the hurry of the organizers, their unkindness, the short duration of the contest, a lack of entertainment, spare time, meals, or shelter, or even a lack of places to sit down for those waiting for their turn. Some promoters of rural youth stated that teachers and finalists from urban schools were unwilling to contact their colleagues from the countryside.

A majority of the teachers considered the information about the requirements of the contest to be insufficient or not very precise. Additional information was usually obtained in a direct

way (telephone, letter), but also indirectly from persons who were not involved in the organization. Promoters of children of employees more often obtained this information directly from the organizers, than the promoters of the other finalists.

In the opinion of the promoters, the most valuable aspects of the competitions were the themes and questions of the contest and, to a much smaller extent, its organization and educational qualities. Very few teachers valued the competitions primarily for the opportunity of getting acquainted with others involved. Compared with promoters of the children of workers or employees, teachers of farmers' children valued the competitions more for their educational qualities. Their opinion on the themes and the organization was somewhat less positive.

If the teachers could decide about the course of the competitions, they would introduce the following changes:

- the promoters would be engaged in the organization;
- all participants would be admitted to the oral part of the competition;
- there would be a big audience;
- the committee of judges would consist more of teachers from other schools and not from those attended by the participants;
- the winners would obtain more valuable rewards;
- there would be a better information service and better social and cultural provisions for participants and promoters;
- the questions of the contest would be more valuable.

The first three changes were somewhat more often mentioned by teachers of children of employees; the other changes were somewhat more frequently heard among promoters of farmers' and workers' children.

~~PART ONE~~

Foto van IKO of bv
Warszawa (PKiN) en afbeelding van
dorp zonder IKO

DETERMINANTS OF SUCCESS IN EDUCATION

-2

X. THE PUPILS' PLACE OF RESIDENCE

It is to be expected that the pupils' place of residence is an important determinant of the chances of reaching the finals and scoring high rather than low.

Pupils who live in a town, especially a province capital or a university town, have better access to literature needed for the competition, and more opportunities of taking part in cultural activities and discussing their experiences with able peers interested in the same subject from other schools. Such opportunities are rare for pupils who live in the countryside, especially in villages without educational and other cultural institutions.

It is to be expected that pupils who live in a village that lacks a school have the least chance of attaining the finals and scoring high rather than low. Such pupils lose much time in travelling to school. Therefore, they have less time to study. The cost of travel and staying away from home may also be a hindrance. When the parents cannot afford such expenditures, the child cannot participate in many educational and other cultural activities organized away from the place they live in.

Some relations between success at the competitions and traits of the place of residence are discussed in this chapter.

1. The level of urbanization.

With regard to the chances of success in education, the most relevant aspect of urbanization might be the extension of educational and other cultural institutions. Therefore, the level of urbanization of the participants' place of residence has been indicated by the presence of such institutions. Thus a distinction has been made between: Warsaw - the cultural centre of Poland; capitals of other voivodships, i.e. the provincial centres of education and culture; other towns; villages with or without a school, and with or without other cultural facilities.

1.1. The chance of attaining the finals.

Census data about the number of pupils in different types of localities who completed primary school in 1976/77 have been

compared with the information obtained from the finalists (see figure I-1 and table I-1).

It followed from this comparison that the number of pupils from a given type of locality who reached the finals to 10,000 school-leavers was 342 in Warsaw, 86 in other province capitals, 114 in other towns, and only 63 in the countryside. Thus pupils from Warsaw had three times better chances of attaining the finals than pupils from other towns, and more than five times better chances than pupils who lived in the countryside.

These findings are illustrated by figure I-1, in which the upper set of bars represents the composition of the finalists with regard to their local background, and the lower set of bars represents the distribution of the pupils who completed full-time primary education in Poland in 1976/77.

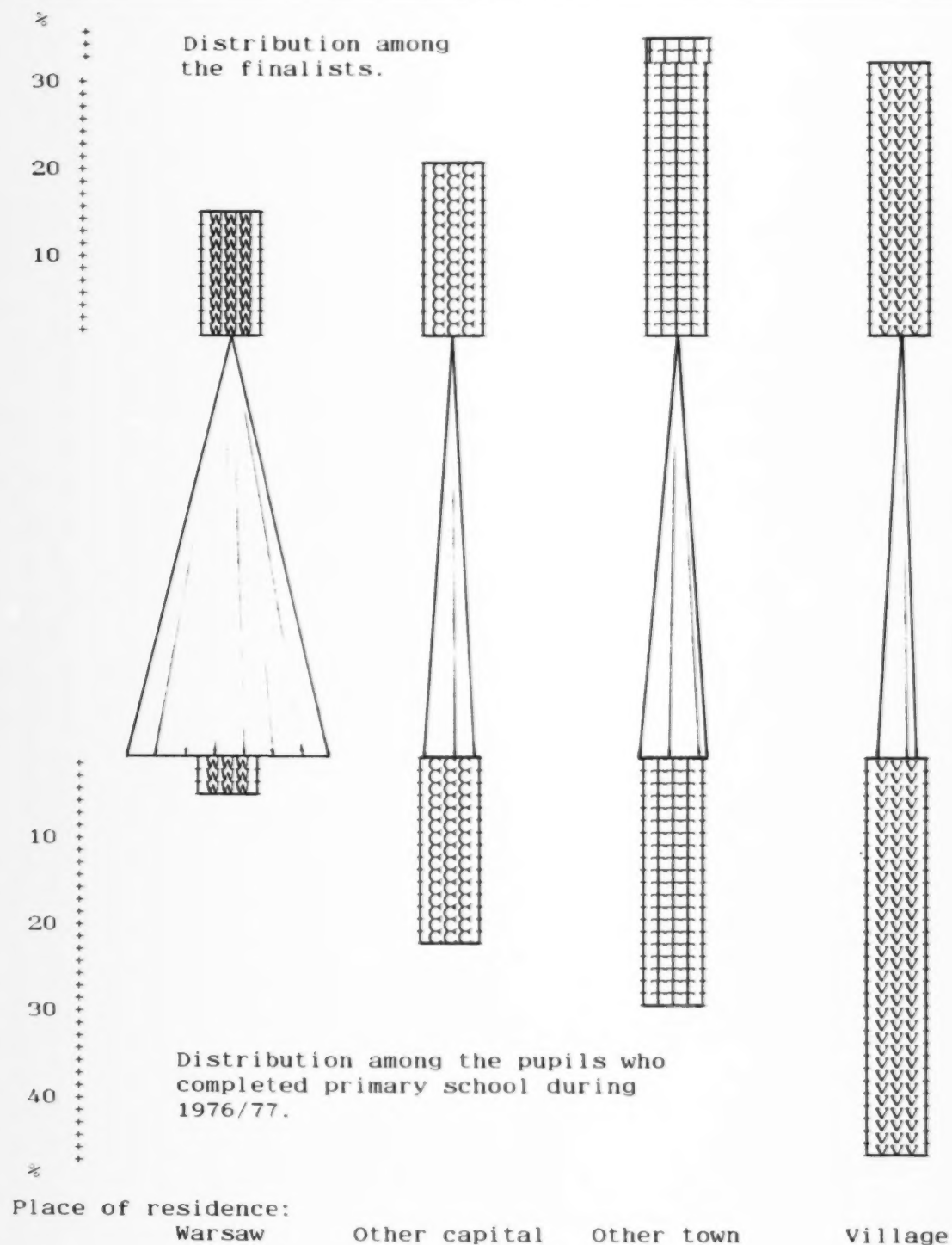
Both frequency distributions are connected by triangles, the base of which is in proportion to the chance of reaching the finals of pupils in the given category of local background. In order to facilitate comparisons, the triangles are divided in strips, each of which represents a chance of a half promille.

The reason for the choice of this unusual layout is that the figure can easily be interpreted in the terms of success as it has been defined in part one of this study. Success depends both on the significance of a given attainment (in this case: to reach the finals of the competitions) and on the difficulties that had to be overcome for that attainment. This latter aspect of success is depicted by the triangles: for some pupils the way to success is an easy, broad avenue; for others it is a hardly passable, narrow path.

1.2. Scores at the finals.

At the competitions in mathematics the finalists who lived in province capitals most often obtained high scores; less than half as often they obtained middle scores, and more than four times less they scored low (see table I-6 B). Finalists from other towns most often obtained middle scores; the proportions of high and low scores among them were half of that of middle scores. Among the finalists from the countryside low scores were two times as frequent as high scores, and one and a half as frequent as middle scores.

Figure I-1
Local background and the chance of reaching the finals.



At the finals in Polish language the differences according to local background were in the same direction, but less pronounced.

It follows that high scores were obtained the most by finalists from province capitals, less by finalists from other towns, and the least by participants from the countryside.

The positive relationship between the chances of success at the finals and the level of urbanization of the place of residence was even more distinct when urbanization was further specified (see figure I-3 and table I-3). The best scores (SR 77) were obtained by finalists from Warsaw. Their scores were:

- 4.5 times better than the scores of those from other capitals;
- 6.5 times better than the scores of pupils from other towns;
- some 12 times better than the scores of finalists living in a village with at least one educational or other cultural institution, and
- 24 times better than the scores obtained by the finalists who lived in a village lacking both a school and other cultural institutions.

Living in the countryside, particularly in a village without cultural institution, gave much less chance of doing well at the finals than living in a town, especially in the country's capital and cultural centre - Warsaw.

1.3. Conclusion.

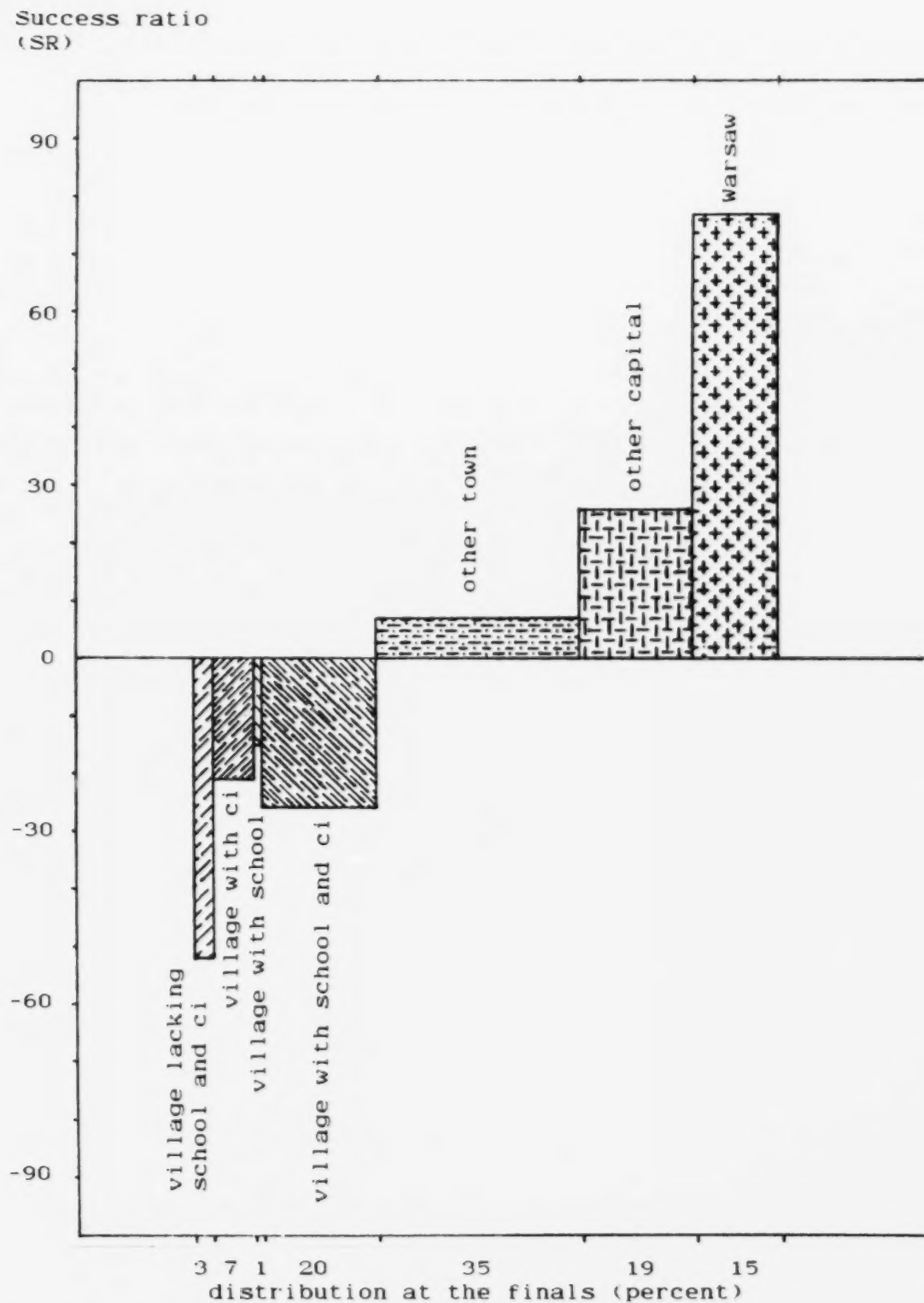
These findings confirmed the hypothesis that the chances of success at the competitions improved with an increasing degree of urbanization of the pupils' place of residence.

The level of urbanization, i.e. the cultural base of the place of residence, was expected to be one of the most important determinants of success at the competitions. Therefore, the distinction between (province) capitals, other towns, and the countryside will be used in the analysis of the other variables, in order to control for local background.

2. The way to primary school.

It is to be expected that the finalists' chances of scoring high rather than low worsen the more troublesome their way to

Figure I-3
Local background and success at the finals.



ci = other educational and cultural institution(s)

school. It is assumed that the way to school is troublesome when the school is distant from home (more than 3 km.), or when the pupil has to travel to school, particularly by several means of transport.

In 1979 one out of 13 pupils travelled to a primary school out of the place of residence. Among the pupils of rural schools this proportion was one out of 4. As a whole, more than half of the pupils were bussed to school. In the period 1973-79 the number of pupils who had to come from outside the school's locality doubled. The number of pupils who were bussed by official organizations increased three-fold, with a faster increase among pupils of urban schools than among those of rural schools.

These statistical data did not include pupils who walked or travelled to a school in their own place of residence. Such pupils could sometimes have a troublesome way to school too, because some localities in Poland stretched over a dozen kilometres or more, as for instance the village of Długie.

A majority of the finalists had a walk of less than half a kilometre to school (54.4%). The proportion of the finalists who walked between half a kilometre and 3 km. was 23.6%, and 1.0% percent walked over 3 km. to school (see table I-11).

9.5 percent of the finalists travelled to school. Most of them (6.8%) had to walk up to half a kilometre to the busstop or station; 1.5% had to walk first between half a kilometre and 3 km., and 0.9% over 3 km. A few finalists travelled by several means of transport (0.3%).

No information on this matter was obtained from 11.5% of the finalists.

In comparison to average primary school pupils, the finalists travelled less to school (9.5% versus 12%). They also walked less to school over more than 3 km. (1.0% versus 1.7%).

2.1. Scores at the finals.

Finalists who lived close to school and only had to walk up to half a kilometre scored one and a half times better than the other finalists (SR 21 versus 3). With decreasing walking distance to school, the finalists obtained better scores.

Pupils who walked to school did half as well again at the

finals as those who travelled to school (SR 15 versus -3). The chance of scoring high rather than low was the least among finalists who travelled to school but must walk to the busstop or station between 1/2 and 3 km., or who had to walk over 3 km.

2.2. Local background.

More than two thirds of the finalists who lived in a town lived up to half a kilometre from school. Among the finalists from the countryside less than half had such an easy way to go (see table I-11 B).

When the place of residence was held constant it was found that finalists who walked up to half a kilometre scored better than those who walked further, especially among pupils from capitals. Among pupils from other towns, however, those who walked further obtained better scores.

Finalists walking to school did better than those who travelled, when they lived in a village or a province capital. When they lived in another town they did half as well.

2.3. Socio-occupational background.

Almost two thirds of the children of employees lived up to half a kilometre from school, and only 7.7% of them travelled to school (see table I-11 C). Among the children of manual workers one half walked up to half a kilometre and 11.4% travelled. The way to school was the most troublesome for the farmers' children among the finalists. Only one fifth of them lived close, and 28.3% had to travel. Far walks to school or to the busstop or station were the most frequent among farmers' children.

When the socio-occupational background was held constant, differences remained between those who lived close to school and those who had to walk far, and between finalists who travelled and those who walked to school, especially among workers' children. However, these differences were not regular.

2.4. Conclusions.

The findings provided some evidence in support of the hypothesis that the chance of scoring high rather than low at

the finals increased the closer the pupil lived to school. As a whole, there were too few finalists who travelled or walked far, to test this hypothesis, even among the participants who lived in the countryside. It was very possible, therefore, that pupils who had a troublesome way to school had almost no chance of reaching the finals of the competitions.

It is to be expected that the further a pupil lives from school and the more troublesome the way, the less time is left to do homework, the more tired the pupil returns home, the less opportunity there is of taking part in out of school activities, and the less contact the parents have with the teachers. These hypotheses have to be tested in further research.

3. The distance to the capital of the province.

It has been assumed that the forces and means for the development of education were, among other things, concentrated in the capitals of the voivodships. A significant distance to these centres might impede the use of these goods, with regard to the cost of travel (both in money and in time) and the fact that less information was available about the educational and other cultural facilities in these towns.

From table I-10 it can be seen that 32.2% of the finalists lived in Warsaw or another province capital. A rather large proportion lived between 20 and 40 km. from the capital of their province (20.4%). Another 10.4% lived closer than 20 km. and 19.6% further than 40 km. from that capital.

3.1. Scores at the finals.

Finalists from Warsaw obtained five times better scores than those from other capitals. Both categories of finalists together scored two and a half times better than finalists who did not live in a province capital.

The further the finalists lived from their capital, the less they scored high rather than low. Exceptions from this rule were the category of finalists living between 10 and 20 km. from the capital, who did somewhat better than those who lived closer (SR 4 and -3), and those who lived more than 60 km. away. The latter did better than those in the categories 20 to 40 km. and

40 to 60 km. (SR -3 versus -10 and -12).

Probably, finalists who lived far from the capital of their province had good access to other centres. The borders of the voivodships were not always at similar distance from the administrative centre (see the map of Poland: appendix E on the last page).

Access to the capital of a province was not always easier for the inhabitants of the surrounding villages than for those who lived in places at a larger distance. The quality of roads and means of communication that connected the villages around the capital, was often less than that of connections with distant places.

3.2. Socio-occupational background.

With regard to the occupation of the parents it could be seen that in each of the four socio-occupational categories of finalists a large majority lived either in province capitals, or between 20 and 40 km. away (see table I-10 C). The proportion of finalists living in a capital was the largest among the children of employees not being teachers (47.3%). Among teachers and workers it was smaller (30.0 and 19.2%), and among farmers' children there were of course only very few from capitals (1.1%).

Among the finalists from Warsaw, who as a whole did the best, teachers' children most often scored high rather than low (SR 82). Workers' children scored as well as children of other employees (SR 76). Among the other categories with regard to the distance from the capital, the children of teachers did somewhat less well than the children of other employees; workers' children scored distinctly lower, and the children of farmers had the least chance.

With a few minor exceptions, a general tendency was found in each of the four socio-occupational categories: the best scores were obtained by the finalists from Warsaw. Next were the scores of finalists from other capitals, and then the chance of scoring high rather than low diminished with increasing distance from the capital. Those who lived more than 60 km. away did better than finalists in the category 41-60 km.

3.3. Conclusion.

The hypothesis that the chances of success at the finals decreased with increasing distance from the capital of the pupils' province was partly confirmed by these findings.

XI. THE PUPILS' FAMILIES

This chapter concerns an analysis of some relationships between traits of the pupil's family and the level of success at the competitions.

The following family traits were expected to be relevant and will be discussed: the occupation and the education of the parents, the number of children and the pupil's birth order, the size of the home-library, the availability of a separate place for the pupil to study, the amount of help to parents expected from the pupil, and how much free time the pupil had.

It is to be expected that those pupils with the best chances of success at the competitions come from families in which parents have a high socio-occupational status and a high level of education; where there is one child or a few children, of whom the finalist is the oldest; where there is a large number of books at home and a separate place for the finalist to study; in which the children need not help their parents much, and where there is plenty of free time.

A cumulation of these family traits is expected to be very favourable, especially when the level of urbanization of the place of residence is high.

1. The occupation of the parents.

It is to be expected that pupils score better at the finals of the competitions, the more their parents' occupations require intellectual effort and less physical fatigue.

The chances of success at the competitions of children from different socio-occupational background, i.e. whose parents have certain occupations, will be discussed. The chances of success will be expressed both in the chance of reaching the finals, and in the chance of scoring high rather than low at the finals.

1.1. The chance of reaching the finals.

Census data showed that in 1976/77 half of the pupils who completed primary school in that year were workers' children (50.4%). The next group (26.2%) were farmers' children, and the children of employees formed a small minority (17.4%).

The shares of these socio-occupational groups at the finals of the competitions were almost reversed. Here, the majority was formed by the children of employees (69.0%), the second large group were the children of workers (20.0%), and farmers' children formed a small minority: 7.4% (see figure I-14 and table I-14).

It follows that out of 10,000 pupils of the given category who completed primary school in 1976/77, 372 children of employees were among the finalists, 37 workers' children, and 27 farmers' children. The chance of reaching the finals of pupils whose parents had other occupations (e.g. self employed craftsmen or shopkeepers) was 55 to 10,000.

The conclusion is that the chances of reaching the finals were unequal for children from the subsequent socio-occupational groups. Children of employees had 14 times more chance of reaching the finals than peasants' children, and a 10 times better chance than children of manual workers.

1.2. Scores at the finals.

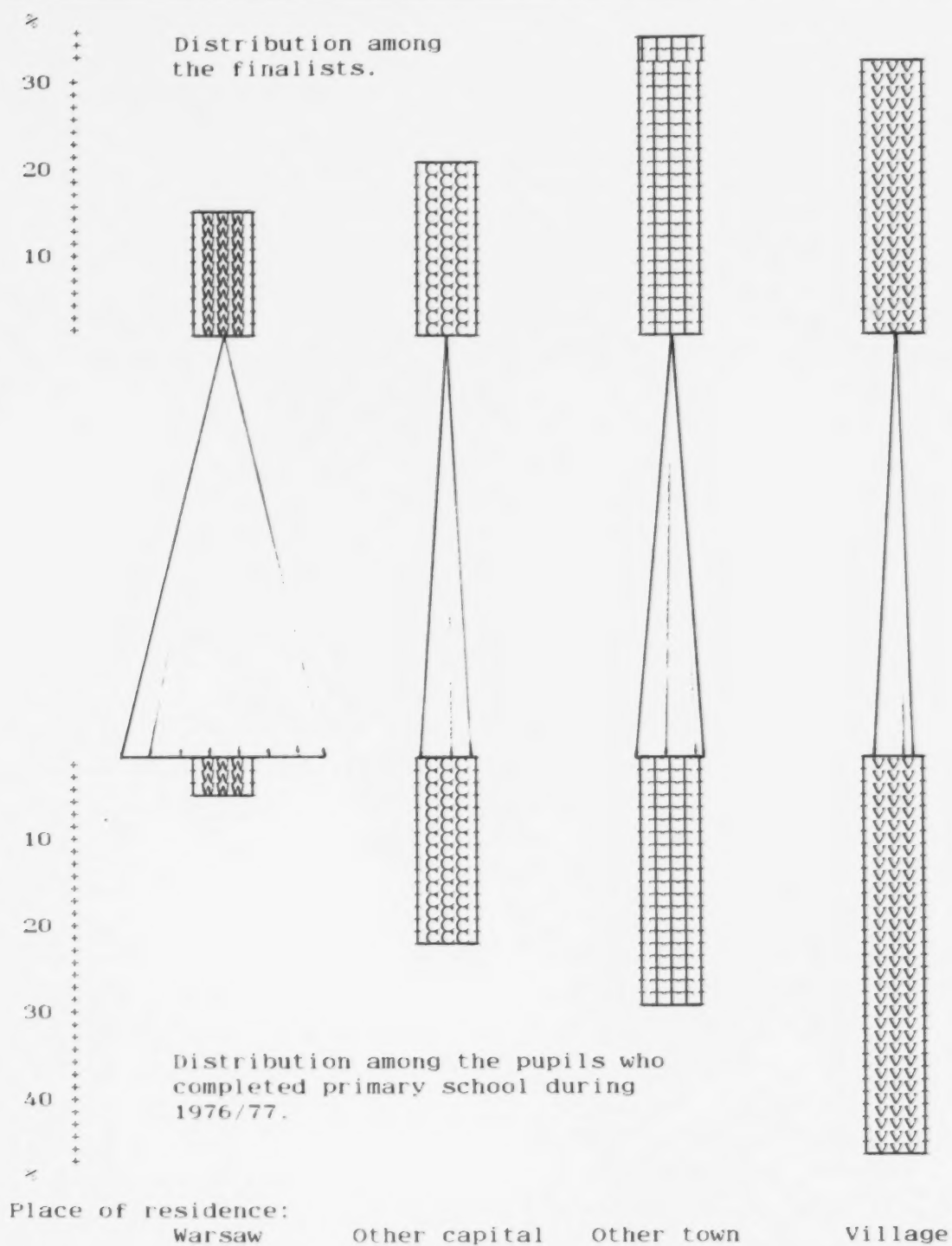
Similar disproportions, though somewhat less pronounced, between children of the various socio-occupational groups could be noted at the finals. High scores were obtained the most by the children of employees, among whom the children of teachers somewhat less (see table I-6 C). High scores were less frequent among the children of manual workers and the least among farmers' children. The median scores of these categories of finalists were respectively: 2.25, 2.55, 3.27 and 3.70.

The children of employees obtained more high scores than low ones. Workers' and farmers' children scored more low than high (see figure I-14a and table I-14a).

Finalists whose parents both had professional occupations (employees with higher education) obtained 4 times better scores than children of manual workers, and they scored 10 times better than peasants' children. When one of the parents was a professional, but the other had a lower level job, the differences with the scores of children from other socio-occupational groups were half as great.

It must be remarked that the chance of scoring high rather than low was for the children of teachers less than for children

Figure I-1
Local background and the chance of reaching the finals.



of other professionals (with higher education) and only slightly better than the chance of children of other employees who did not complete higher education. It follows that pedagogical training of the parents was not in itself sufficient to stimulate a child to learn. A parent's occupation requiring high intellectual qualifications and also probably well-paid seemed to be a better condition for success at the finals. The profession of teacher was relatively low paid in Poland. Further research would be needed to prove this conclusion.

1.2.1. Parents with the same or different occupations.

An interesting question is whether the chances of success at the finals were better when both parents belonged to the same occupational category than when one of the parents had a higher occupational position than the other.

To answer this question a distinction has been made between finalists of whom both parents were in the same occupational category and finalists of whom one of the parents had no paid job or was in a lower occupational category. In the latter case the finalist had been classified in the socio-occupational category of the parent with the highest occupational level.

It was assumed that in a situation where both parents had a similar occupational level, there would be more mutual understanding in the family and as a result a better educational climate, than when the parents differed with regard to their occupational position. A better educational climate in the family might provide better the chances of success.

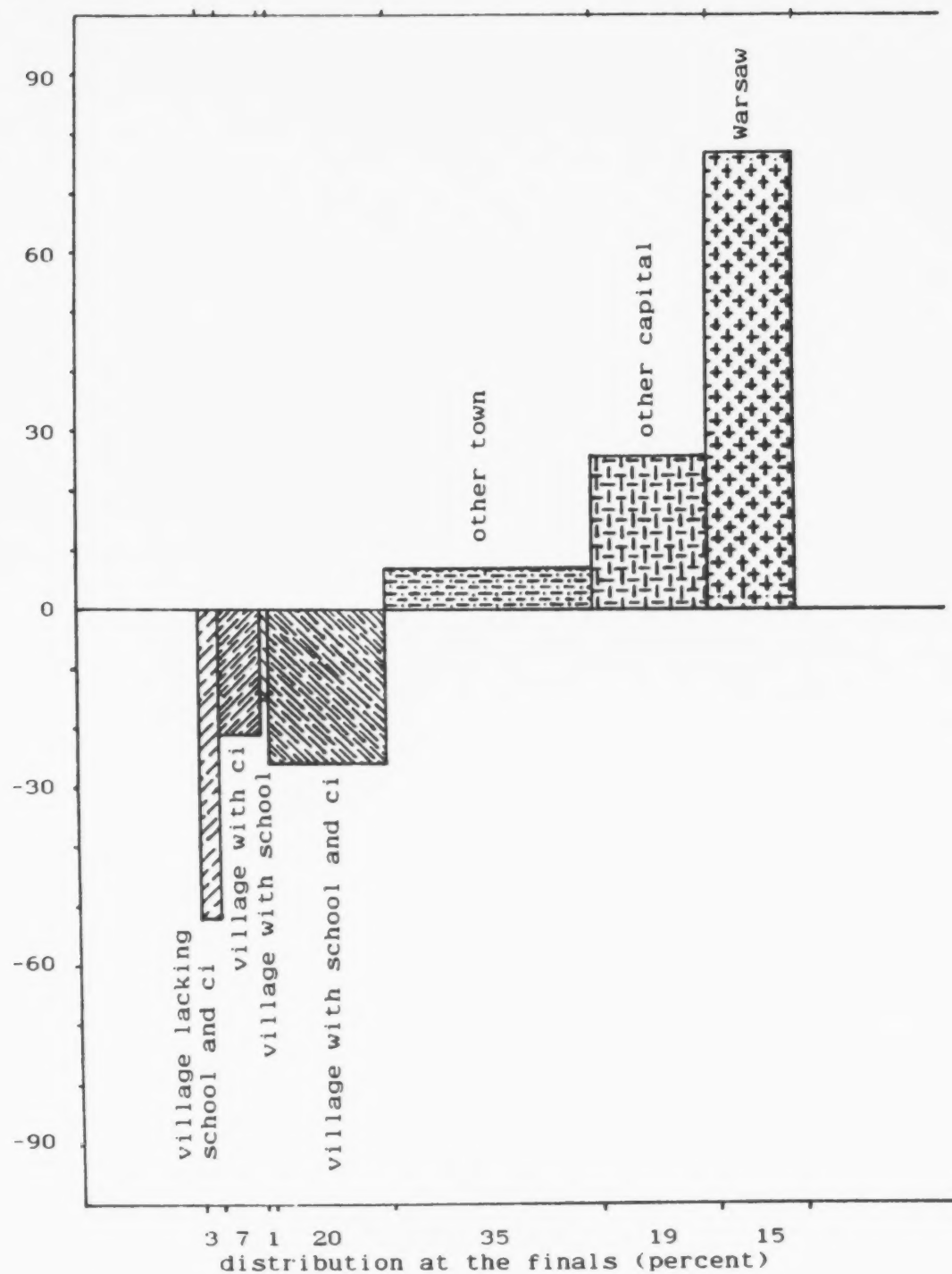
Finalists whose parents both had a similar occupational level did better, indeed, than those whose parents had different levels (see figure I-14a and table I-14a). The differences were as follows:

- in the category of professionals the former finalists scored almost two times better than the latter;
- the former did somewhat better in the category of teachers;
- they scored one and a half times better in the categories of other employees and of manual workers;
- only in the case of finalists of whom both parents were peasants were the scores at the finals lower than among finalists of whom only one of the parents was a peasant.

This might indicate that peasants had less opportunity to

Figure I-3
Local background and success at the finals.

Success ratio
(SR)



ci = other educational and cultural institution(s)

stimulate their children for success at school. This hypothesis would have to be tested in further research.

1.3. The subject of the competition.

If the language of manual workers and farmers would be less appropriate for use in school than that of more privileged social groups (Bernstein 1971), the effect of such linguistic differences would be more pronounced at the contests in Polish language than in mathematics. It is to be expected, therefore, that workers' and farmers' children have more chances of success at the competitions in mathematics than in Polish language. Children of employees, especially teachers' children, would have a linguistic advantage and therefore more chances of success at the contests in Polish language.

1.3.1. Mathematics.

At competitions in mathematics employees' children most often obtained high scores; somewhat less they obtained middle scores, and more than two times less they scored low (see table I-6 C). Especially the lowest score (6) was rare among these finalists. The distribution of the scores of teachers' children was similar but tended less towards the highest scores. Among the children of workers high scores were clearly less frequent than middle scores. The proportion of middle scores was half as high again as that of the low scores. Among farmers' children low scores were three times as frequent as high scores, and almost two times as frequent as middle scores.

1.3.2. Polish language.

At the finals in Polish language employees' children also obtained most often high scores. Especially the highest score (1) was very frequent among these finalists. They got that score more than twice as often as workers' children and four times as often as farmers' children. At these finals there was no much difference between the scores of the children of teachers and those of other employees. The distribution of the scores of the latter tended somewhat more to the extremes. Workers' children most frequently got middle scores, somewhat less low scores, and high scores the least. Almost one half of the farmers' children

obtained middle scores: much more than at the competitions in mathematics. One third scored low, and high scores were again the smallest category of scores among those pupils.

1.3.3. Linguistic advantages.

The hypothesis that children of employees would do better in Polish language than in mathematics, and that children of manual workers and farmers would do better in mathematics, was hardly supported by the findings.

From the composition of the finalists with regard to their socio-occupational background at the finals in both subjects it could be seen that the chances of reaching the finals in Polish language were indeed somewhat better for the children of teachers. The chances of reaching the finals were for workers' children slightly better in mathematics than in Polish language (as was also expected). However, children of other employees had better chances of reaching the finals at the competitions in mathematics, and the children of farmers had much better chances of reaching the finals in Polish language (see table I-14).

It must be remarked that reference has been made to the relative chances of reaching the finals. There were much more finalists at the competitions in mathematics than in Polish language.

Whereas the scores at the finals of the competitions were slightly better in mathematics than in Polish language (median 2.68 versus 2.65), the analysis according to socio-occupational background led to the contrary conclusion. Within each socio-occupational category the median scores at the finals in Polish language were better than at the finals in mathematics. The higher the scores on these subjects the less their difference (see table I-6 C).

When the median scores were used as a measure it could be seen that the scores in Polish language exceeded those in mathematics by:

- 22% among the finalists whose parents were farmers;
- 5% among the children of manual workers;
- 2% among teachers' children, and by only
- 1.7% among the children of other employees.

When the success ratio or the success quotient were used as a measure, i.e. when the good and bad chances were considered

Figure I-5
School-size and the chance of reaching the finals.

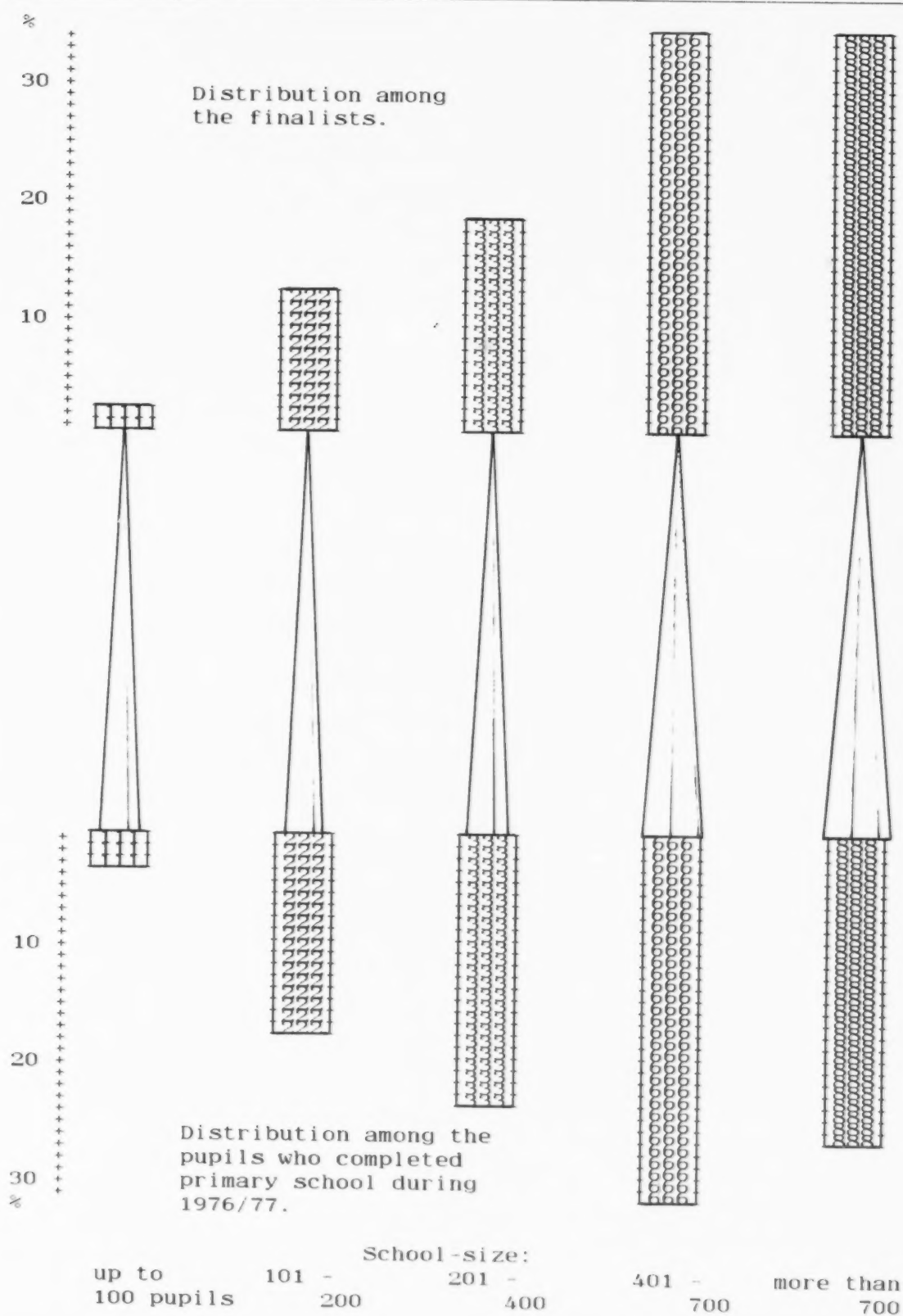


Figure 2.

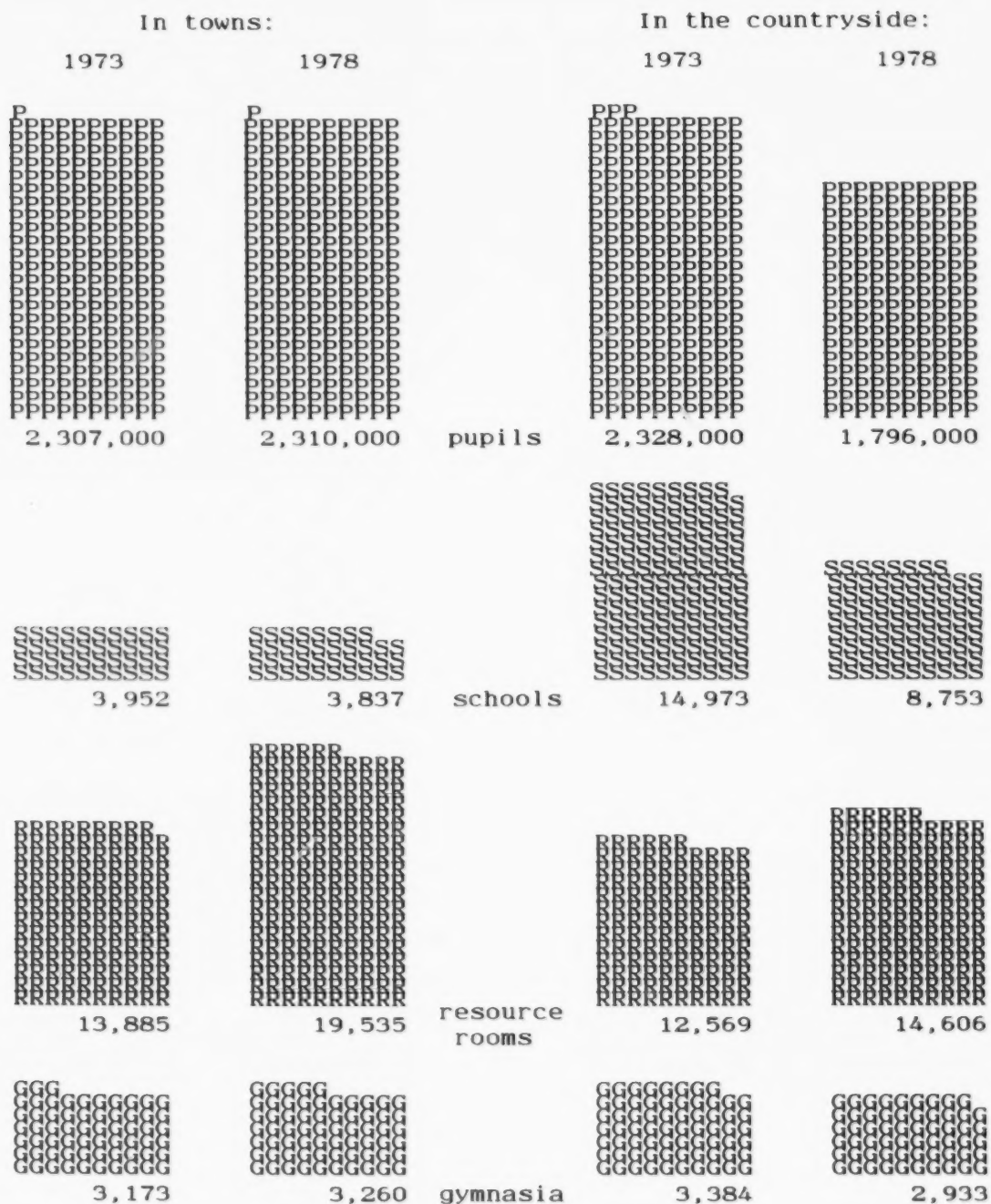
Pupils, schools, resource rooms and gymnasia in Polish primary education in 1973 and 1978.

P = 10,000 pupils

S = 100 schools

R = 100 resource rooms

G = 50 gymnasia



instead of some average chance (as indicated by the median), the hypothesis must be rejected. Children of employees had more chances of success at the finals in mathematics than in Polish language, whereas farmers' children scored better at the finals in Polish language:

- children of teachers scored about equally well in both subjects (SR 22 in Polish and 23 in mathematics);
- children of other employees had distinctly better chances at the finals in mathematics (SR 20 in Polish and 42 in mathematics);
- children of manual workers had about the same scores in both subjects (SR -18 in Polish and -19 in mathematics).
- children of farmers scored somewhat better in Polish (SR -42 versus -50).

Further research would be needed to study the causes of these relationships.

1.4. Socio-occupational origin and local background.

In the preceding chapter it has been mentioned already that there were marked differences in the chances of reaching the finals and scoring high rather than low, between pupils of different local background. In discussing these differences the influence of the parents' occupation has also been pointed out. Furthermore, differences in the chances of pupils of various socio-occupational background were found to be considerable.

1.4.1. The chance of reaching the finals.

Within each category of local background, children of employees were more represented at the finals than workers' and farmers' children (see tables I-3 C and I-14a B). The latter were represented the least. This difference was greater among urban youth than among pupils from the countryside.

Among the finalists from Warsaw there were:

- a large majority (88.9%) children of employees, including 15.9% teachers' children;
- more than 9 times less workers' children (9.7%);
- only three children with a farm background; a number that did not allow further analysis.

Among the finalists from other towns there were:

- again a large majority of employees' children (80.2% including 23.5% children of teachers);
- almost 5 times less children of manual workers (18.6%);
- almost 80 times less farmers' children (1.1%).

Among the finalists from the countryside:

- the largest group were employees' children (44.4% of whom one half - 22.1% - were children of teachers);
- the proportion of workers' children was 30.5%, and
- that of farmers' children was 23.9%: half as many as that of the children of employees.

The disproportions in the representation of the subsequent occupational groups among the finalists became even more clearly visible when this representation was compared with the socio-occupational composition of the population of the given types of communities. This has been done on the basis of census data (see table 2).

There were very different numbers of representatives at the finals per 100,000 of the population of the given socio-occupational category in the given type of locality.

In Warsaw:

- the largest number (3,058) was found among teachers' children;
- the number of children of other employees was 5 times less (605);
- the number of workers' children was more than 30 times less (99).

In other towns:

- the largest number was found among teachers' children again (888);
- it was 3 times less among the children of other employees (282);
- the number among workers' children was 32 times less (28), and
- it was 37 times less among farmers' children.

In the countryside:

- among the children of teachers the number was the highest again (911);
- among the children of other employees it was 7 times less (135);
- it was 15 times lower among workers' children (53), and
- 37 times lower among the children of peasants (25).

Table 2

Place of residence, socio-occupational background, and
the chance of reaching the finals of the competitions.

The number of finalists per 100,000 of the given population.

Socio-occupational category:	Place of residence:		
	Warsaw	other town	countryside
teachers	3,058	888	911
other employees	605	282	135
manual workers	99	28	53
farmers	.	24	25

Sources: Rocznik statystyczny 1978: 26, 42-43, 45;
Rocznik statystyczny szkolnictwa 1978/79: 24-27;
Spis kadrowy 1977: 54-63.

It follows that within each category of local background the chance of reaching the finals was the best for teachers' children and - to a lesser extent - for the children of other employees. The chances of children of manual workers or farmers were 15 to 37 times smaller than those of employees' children.

The children of teachers had extremely good chances of reaching the finals when they lived in Warsaw. Children of other employees had a better chance of reaching the finals, the more urbanized their place of residence and perhaps also the larger the share of such employees in the population.

Workers' children from Warsaw had a three times better chance than those from other towns, and two times better than those from the country.

The chances of farmers' children of reaching the finals were about the same, whether they lived in a town or in the countryside. The number of peasants who lived in Warsaw was too small to draw any conclusions from.

It must be remarked that pupils from all socio-occupational groups in Warsaw had much better chances of reaching the finals than pupils in other provinces, because in that city many more participants were admitted to the finals than elsewhere.

The conclusion from these findings is, that the pupils' socio-occupational background was of much greater relevance for their chances of reaching the finals of the competitions than their local background.

Children of teachers or manual workers had better chances when they lived in the country, rather than in a town (except Warsaw). This might indicate that the chances of attaining the finals were better in places where a majority of the population consisted of persons of lower socio-occupational status, than in places where the majority was formed by persons of similar or higher socio-occupational status, with whom it was less easy to compete.

1.4.2. Scores at the finals.

Such relationships were only partly found with concern to the chances of scoring high rather than low at the finals. These chances improved in all socio-occupational groups with an increasing level of urbanization (see tables I-3 C and I-14a B).

Rural youth obtained more low scores than high ones, in

each occupational category (SR negative). Nevertheless, children of employees scored better than workers' or farmers' children. In Warsaw, in contrast, workers' children did almost as well at the finals as the children of employees.

In other capitals the children of employees scored two and a half times better than the children of workers; in other towns they scored two times better, and among rural youth they also did about twice as well. There were too few farmers' children among the urban finalists to make any comparisons.

These relationships between socio-occupational background, local background, and success at the finals were the same at the finals in mathematics as in Polish language.

From these data followed that the chance of scoring high rather than low at the finals was better for urban youth than for children from the country. Irrespective of local background, children of employees had better chances of doing well at the finals than workers' children.

Among the finalists who lived in the countryside, children of employees did two and a half times better than the children of farmers or manual workers. Farmers' children scored somewhat lower than workers' children. When a further differentiation was made with regard to the presence of cultural institutions in their village, the small advantage of the workers' children almost disappeared (see table I-3 C).

1.5. Socio-occupational background, industrialization of the province, and success at finals and half-finals.

A comparison of the scores at the finals with those at the half-finals showed that finalists had twice as much chance of scoring high rather than low than the half-finalists in the sample. Such differences between the scores of pupils of various local or socio-occupational background were larger at the finals than at the half-finals (see table I-0).

This could mainly be explained by a larger social differentiation among the finalists than among the participants at the (regional) half-finals. Whereas the finals included all regions of Poland, including large urban agglomerations, the level of urbanization of the regions where the half-finals were held was below the national average. There was no university in these

regions and there were only minor administrative centres. Consequently, the proportion of pupils whose parents had a very high socio-occupational position (high officials, scientists, or creative intellectuals) was much larger at the finals (21%) than at the half-finals included in the investigation (5%).

1.6. Summary.

From these findings followed that success at the competitions was closely related to the socio-occupational position of the parents.

When both parents were in the same occupational category, the situation was more favourable for success than when one of the parents had a higher position than the other.

The chance of reaching the finals was found to depend primarily on the pupils' socio-occupational background. The chance of scoring high rather than low was more strongly related to their local origin than to their socio-occupational background, although the latter also played a very important role. For success on a higher level the place of residence appeared to be a more significant factor than the socio-occupational background.

Socio-occupational background was expected to be one of the most important determinants of success at the competitions. Therefore the distinction between teachers' children, children of other employees, worker's and farmers' children will be used in the analysis of the other variables, in order to control for socio-occupational background.

It may be assumed that parents with jobs consisting of a great deal of intellectual effort may help their children better at learning than parents whose jobs require less intellectual activity. The training of the parents, both at school and through work-experience, might be an important factor in this respect.

The amount of free time at the parents' disposal seems to be important for the effectiveness of the help they give their children. Parents with a rather short work-week (e.g. teachers who work 26-27 hours a-week and some other professionals) might have more reserves of time to help their children than parents with a 42-hour work-week (e.g. manual workers) or with an almost

unlimited work-week (peasants).

Another factor that may have much influence on the effectiveness of parents' help to children is legal protection of the parents' work, in that it gives a feeling of stability, safety for the future, and confidence in the fairness of remuneration. Such a stability was provided by professional functions to a much larger extent than work at a farm, in the household, etc.

These and other traits of the occupations of the finalists' parents, that have been discussed here, might determine the help the parents give their children and consequently their influence on their children's success in education.

The findings confirmed the hypothesis that the chances of success at the competitions were better for those with parents in more qualified positions. This will be discussed in more detail in the following section, where the educational level of the parents will be considered as well.

2. The educational level of the parents.

It is to be expected that the chances at the competitions improve with an increasing educational level of the parents. In other words: the higher the parents' educational level, the better the chance of reaching the finals and scoring high rather than low.

2.1. The chance of reaching the finals.

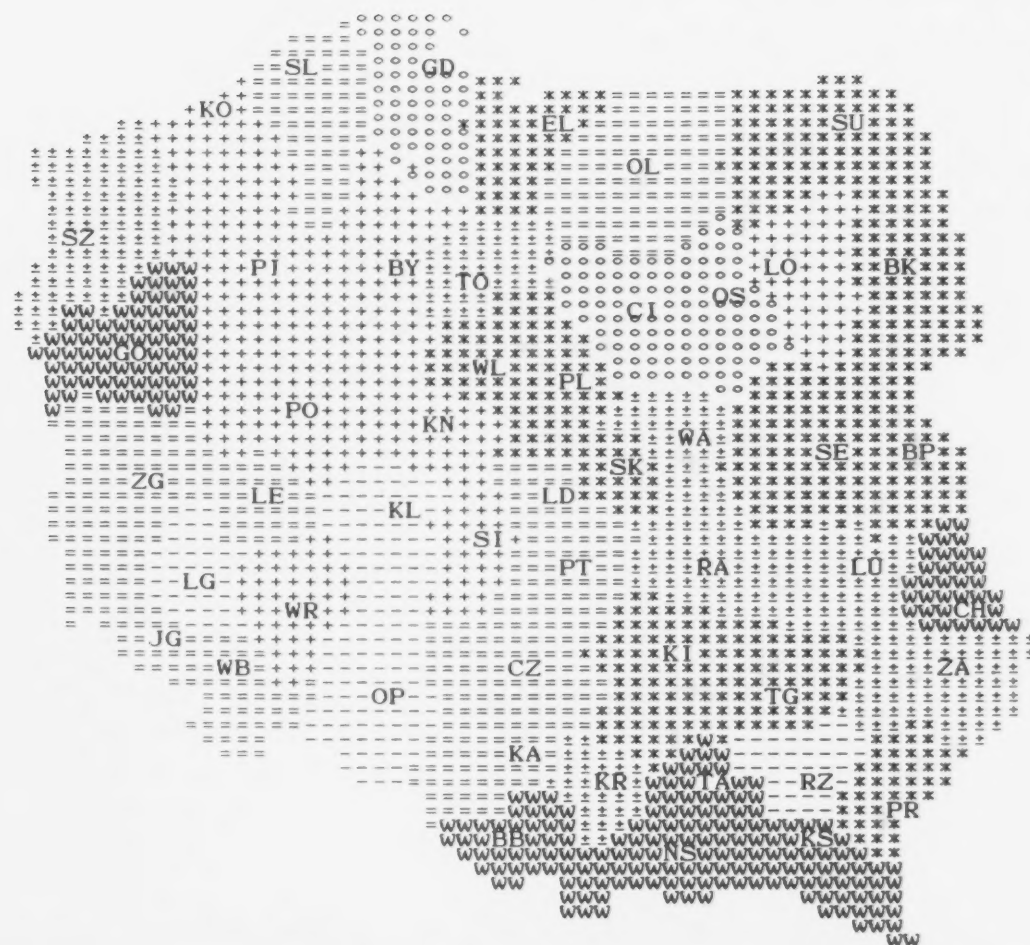
A comparison with statistical information showed that there were marked differences in the chances of attaining the finals of the contests, with regard to the educational level of the parents (see figure I-13 and table I-13):

- children whose parents graduated at a university had the best chance of attaining the finals: 526 out of 10,000 of such children who in 1977 completed primary education reached the finals of the competitions;
- children whose parents had completed higher-level secondary education had half as much chance: 279 out of 10,000 became a finalist;
- the number of children of parents with lower-level secondary education was 10 times smaller: 52;

Figure 3

The highest score obtained by a farmers' child at the finals.

B. MATHEMATICS



w = score 1 (winner of the final)

* = score 2

+ = score 3

± = score 4

- = score 5

= = score 6

° = missing cases

The pairs of capital letters are the abbreviations of the name of the (capital of the) voivodship and indicate the localisation of the capital town.

- children of parents with primary education had the least chance of reaching the finals: Only 25 out of 10,000, i.e. 21 times less than among the children of graduates.

2.2. Scores at the finals.

The higher the parents' level of education, the better the finalists' chances of scoring high rather than low at the finals of the competitions (see figure I-13a and table I-13a).

The best scores were obtained by children whose parents both completed university education. As compared with the scores of finalists in the other categories, their scores were:

- more than one and a half times higher than when only one of the parents was a university graduate;
- almost three times better than when both parents attended, but did not complete university, or when they had non-academic tertiary education;
- twice better than when one of the parents had non-academic or incomplete higher education;
- more than twice as well as when both parents completed higher level secondary education;
- four times better than when one of the parents completed higher-level secondary education;
- eight times better than when both or one of the parents had lower-level secondary education or incomplete higher-level secondary education;
- almost six times better than when at least one of the parents completed primary school, and
- eight times as well as when both parents did not complete primary education.

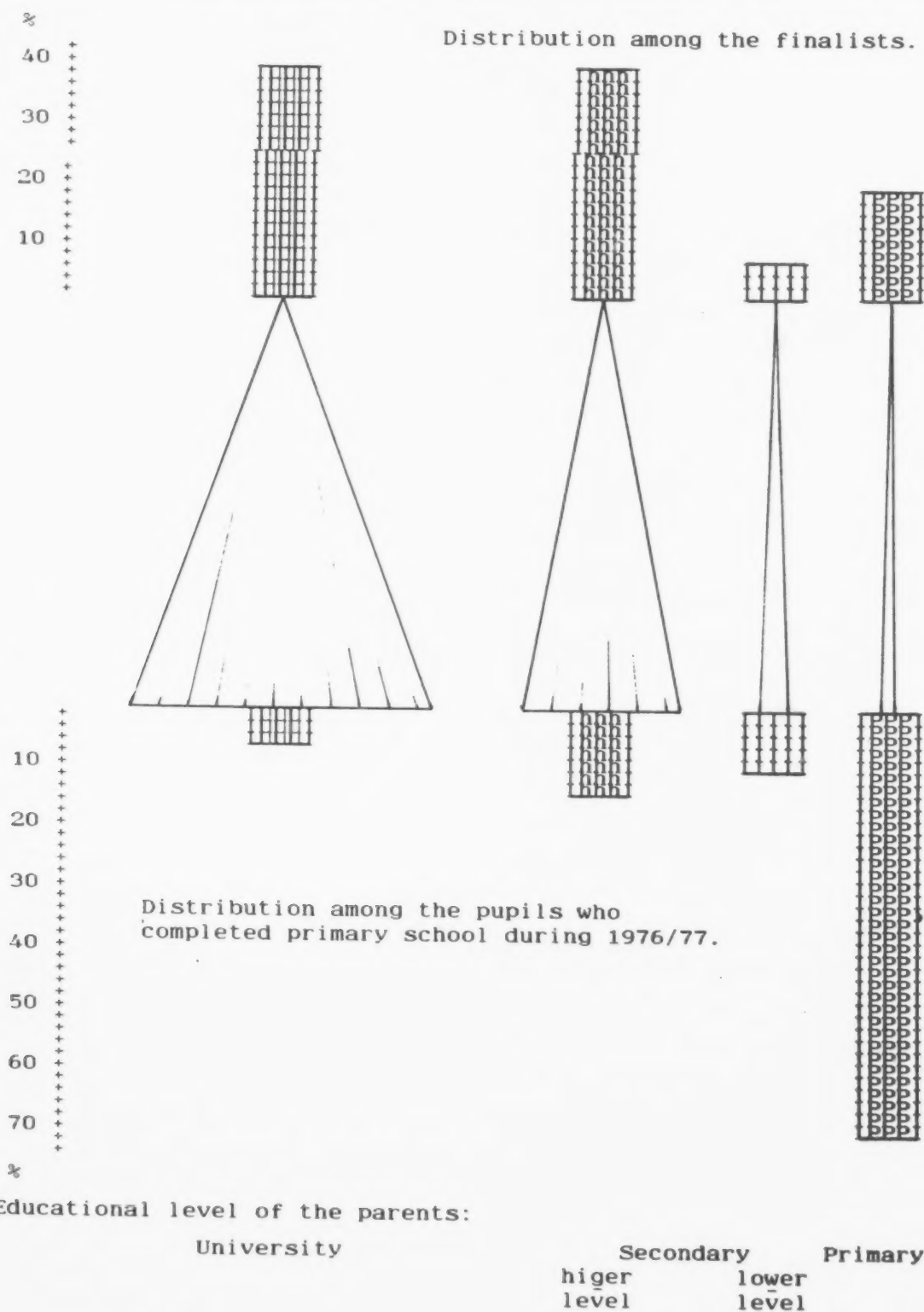
It is worth mentioning that a situation in which both parents had a non-academic tertiary education or an incomplete university education was less favourable for the chances of success at the finals than when only one of the parents had such an education and the other had a lower level of education. Similarly, finalists whose parents (one or both) had lower-level or incomplete higher-level secondary education had less chances of scoring high rather than low than children of whom at least one parent had completed primary school.

Both non-academic tertiary education and lower-level secon-

Figure I-13

Educational level of the parents, and the chance of reaching the finals.

P. 145 on 46 on wisseben



dary education were forms of vocational education. It may be assumed that a more or less one-sided orientation on a future job led to a neglect of theoretical knowledge. After a period of practical work the theoretical knowledge might vanish to such an extent, that it did not even equal that of persons who completed schools of the next lower level. Another reason for this finding might be that both categories of education included drop-outs from the next higher category. Further research would be needed to test these assumptions.

2.3. Local background.

There were significant differences between urban and rural youth at the finals with regard to the educational level of their parents. Whereas among the finalists from capitals almost two thirds had one parent (or both) who completed university education, this proportion was less than one quarter among the finalists from the country. Among the former finalists only one out of 25 had parents with no more than primary education; among the finalists from the country it was almost one out of three (see figure I-13b and table I-13a B).

When the parents' educational level was held constant it could be seen that the chances of scoring high rather than low at the finals increased with the level of urbanization. Pupils from capitals obtained at least three times better scores than finalists from the country whose parents had the same level of education. Finalists from other towns scored at least one and a half times better than the latter.

When local background was controlled for, the general relationship between the parents' educational level and the finalists' scores remained the same. Only the difference between the various categories was smaller.

In all categories of local background the finalists whose parents were university graduates obtained the best scores. Those whose parents had no more than primary education obtained the lowest results.

Among the finalists who lived in a capital or in the country the former (i.e. the children of graduates) did about two and a half times as well as the latter. Among the finalists from other towns the difference was somewhat smaller: here the

Figure I-13a

Educational level of the parents and success at the finals.

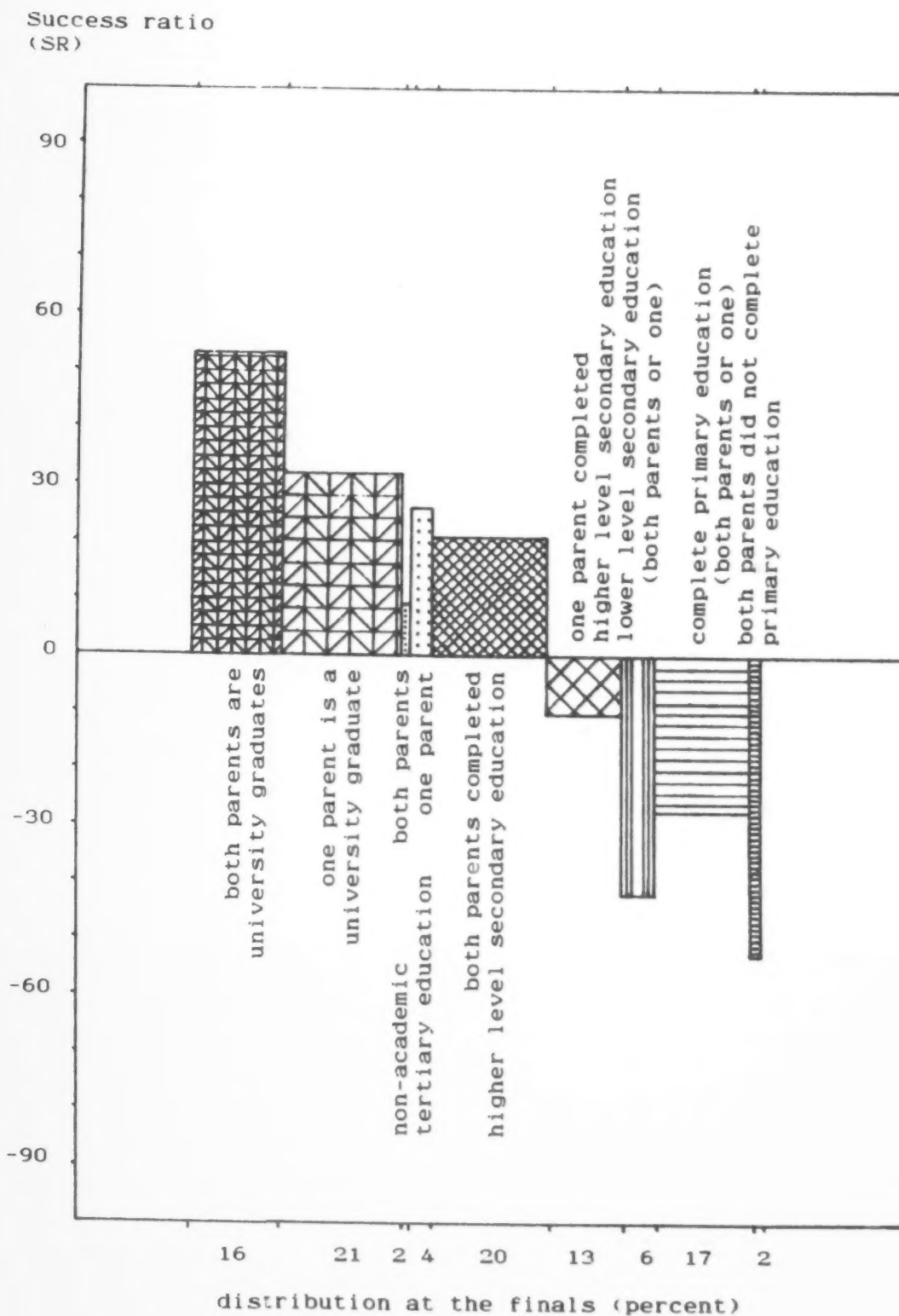
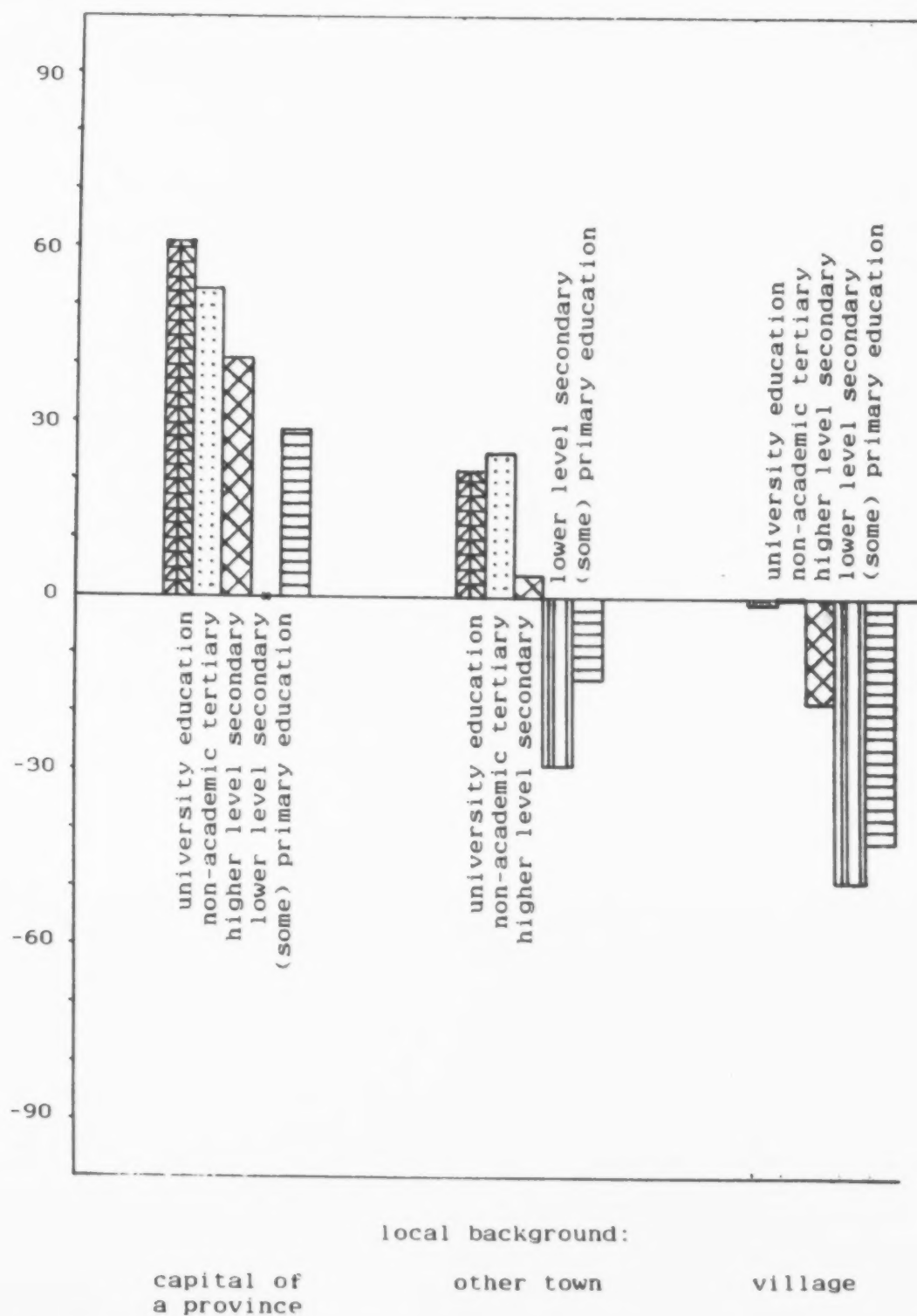


Figure I-13b

Educational level of the parents, local background and success at the finals.

Success ratio
(SR)



An 'x' on the X-axis indicates that the number of observations was too small for computations.

children of graduates did twice as well as children of parents with at best primary education.

Irrespective of their local background, the children of persons with a higher education had better chances of success at the finals than those whose parents had a lower educational level.

2.4. The parents' socio-occupational and educational level.

As could be expected, the socio-occupational level of the parents was closely related to their level of education (see table I-13a C).

- In almost two thirds of the teachers' families one parent or both were graduates. One out of six of these families belonged to the category of non-academic tertiary education; the rest (one out of five families) to that of secondary education.
- In other employees' families almost one half belonged to the category of university graduates and a similar proportion was present in that of higher-level secondary education. The category with non-academic tertiary education was small, as was that with primary or lower-level secondary education (repectively 3.0 and 3.7 percent).
- Almost half of the families of manual workers belonged to one of both categories of secondary education, among which the higher and the lower level were equally represented. The rest were in the category of primary education.
- A large majority (85%) of the farmers' families belonged to the category of primary education. In one out of seven farmers' families none of the parents had completed primary school. One out of nine families belonged to one of both categories of secondary education, among which the higher level was somewhat better represented. Tertiary education was rare among the farmers; there were no cases in which both parents had that level.

In each socio-occupational category the finalists' chances of scoring high rather than low improved with the rise of their parents' educational level. A comparison of this relationship between the various occupational groups was not easy, because there were almost no families of teachers and other employees with an educational level below higher-level secondary school,

whereas among workers' and farmers' families there were almost no cases above that level.

- Finalists from teachers' families in which both parents were graduates scored more than two times as well as finalists from teachers' families where both parents completed higher-level secondary education.
- Children of other employees did almost three times better when both parents were graduates as compared to the cases in which the parents completed higher-level secondary education.
- Finalists from workers' families where both parents completed higher-level secondary education did three times better than when the parents had lower-level secondary education, and they did twice as well as when the parents had no more than primary education.
- The influence of the parents' education on the scores of farmers' children could not be estimated because there were too few farmers' families in other categories than that of primary education.

2.5. Conclusions.

The chances of reaching the finals of the competitions improved very much with an increasing educational level of the parents. With two exceptions a clear positive relationship could be seen between the educational level of the parents and their child's chance of scoring high rather than low at the finals.

The findings supported the hypothesis that the chances of success at the finals of children whose parents had a given educational level improved with increasing urbanization of their place of residence.

According to expectation the parents' educational level was found to be highly congruent with their socio-occupational status. This limited the possibilities of an analysis of the childrens' chances of success. In so far as this analysis could be made, these chances improved with a rising educational level within each socio-occupational category.

The congruence of the educational and socio-occupational level of the parents made it possible to choose one of these variables for use in the further analysis of the research data. When the educational level would be used farmers and manual

workers would mostly be in the same category (i.e. of primary education) and so would the teachers and the other employees. To avoid such a loss of information the parents' socio-occupational status has been chosen for the further analyses.

It is to be expected that by reduction of the inequality of the parents' education, especially their general education, the childrens' chances of success at the competitions - and in education as a whole - would become more equal.

3. Family-size.

Almost all finalists came from complete families. Some 3% had only one parent and a few (0.1%) lived in an orphanage (see table I-12a).

The finalists' families counted mostly two (39.9%) or three (22.1%) children. One out of eight finalists (12.6%) were only children, and an equal proportion of the finalists had families with four or more children.

3.1. Scores at the finals.

It was to be expected that the chances of scoring high rather than low at the finals increased, the smaller the number of children in the family. This hypothesis was confirmed by the findings. When there were up to three children in their family the pupils had more chance of scoring high than low (SR positive). When there were four or more children the chance of scoring low was larger than that of scoring high (SR negative).

Only children among the finalists had the best chances of success. Their scores were:

- more than half as well again as the scores of finalists from families with two children;
- two and a half times better than when there were three children;
- more than three times better than when there were four children;
- six times better than when there were five children, and
- nine times better than the scores of finalists from families with six or more children.

3.2. Local background.

The chances of success at the finals increased, the higher the level of urbanization of the finalists' place of residence and the smaller the size of their families (see table I-12a B).

Families of finalists from capitals were smaller than those of the other finalists. Whereas among the finalists from capitals one out of four was an only child, this proportion was almost three times less among the other finalists.

Among the finalists from capitals and among those from the country, there was a clear relation between family-size and the scores at the finals: the smaller the family, the better the scores. The scores of finalists who were the only child in the family were half as well again as when there were two children, about two times better than when there were three children, and slightly more than two times better than when there were four. Larger families were rare in the capitals. The tendency of the scores to decrease with increasing family-size continued among finalists from the country. Rural finalists who were only children scored four times better than those from families with six or more children.

Among the finalists from other towns there was no clear relationship between family-size and the scores at the finals, although only children did somewhat better than others.

When family-size was controlled for, it could be seen that the chances of success improved the higher the level of urbanization of the place of residence:

- only children from capitals scored almost three times better than only children from other towns and almost four times better than only children from the country;
- finalists from families with two children had almost three times better chances of success when they lived in a capital than in another town, and the former scored four and a half times better than such finalists from the country;
- when there were four children in the family, finalists from capitals scored almost twice as well as those from other towns and more than four times better than those from the country.

3.3. Socio-occupational background.

The families of employees' children among the finalists were smaller than the families of the other finalists (see table I-12a C). Whereas 11.1% of the teachers' children and even 18.2% of the children of other employees were only children, the proportion of only children among the other finalists was much smaller. It was 7.8% among workers' children and only 2.5% among the children of farmers.

Families with two children were the most frequent among teachers (52.1%) and other employees (47.6%). The proportion of finalists from workers' families with two children was much lower (30.3%), but also in this socio-occupational group this family-size was the modal one. Among the farmers' children were only a small proportion (13.0%) from families with two children. The modal family-size of finalists with a farm background was one with four children.

The proportion of finalists from families with six or more children was the largest among farmers' children (19.1%); it was almost four times smaller among workers' children, and it was negligible (less than 1%) among the children of teachers and of other employees.

Finalists who were only children scored more than three times better when they were children of employees than in other cases (SR 53 versus SR 0). Only children of teachers did as well as only children of other employees.

When there were three children in the family, children of employees scored about two and a half times better than workers' children and about three times better than farmers' children. In such cases, the children of teachers obtained somewhat lower scores than the children of other employees.

With four or more children in the family, children of employees had about an equal chance of scoring high or low (SR 3). This was twice as well as the scores of workers' children from such families (SR -33) and three and a half times better than the scores of farmers' children (SR -54).

A negative relationship between family-size and success at the finals was found in each of the four socio-occupational categories:

- among the children of teachers at the finals only children had a more than three times better chance of scoring high rather than low than when there were four children;
- among the children of other employees the scores of only children were more than twice as good.
- among workers' children at the finals the difference in scores between only children and those from families with four children was a factor one and a half, in favour of the former.

There were too few only children among the farmers' children at the finals to make a similar comparison. When there were three children in these families the scores were three times better than when there were six children or more. It may be added that the difference in scores among workers' children was only half as great.

3.4. Conclusions.

It follows that the chances of success at the finals were better among finalists from small families than among those from big families. This was the case in each of the four socio-occupational groups.

A larger number of children in the family might imply that the parents had less time to spend with each child, that they had a high work-load, and that the children had fewer learning facilities. Moreover it was probable that the children in larger families had relatively many contacts with children and rather few with adults who could stimulate their development.

4. Birth-order.

It was to be expected that, besides the number of children in the finalists' family, the birth-order was also relevant for the chances of success at the competitions. First-born children especially might have better circumstances for learning than their younger siblings. Consequently first-born children would have a better chance of reaching the finals and of scoring high rather than low.

4.1. The chance of reaching the finals.

From the information on the family-size, presented in the previous section, the proportion of finalists of a given birth order could be computed for the null-hypothesis that the chance of attaining the finals would be independent of birth-order. Should this null-hypothesis be true the proportion of first-born children among the finalists would be 43.1%; of second children 29.7%; of third 7.4%, and there would be 19.8% finalists of higher birth-order.

In reality the proportion of first-born children at the finals was 21% higher (52.2%) than when birth-order would have been irrelevant (see table I-12b). Second-born children were 8% underrepresented (27.3%). Third-born children were markedly better represented (18%) than could be expected from the size of the family. The proportion of children with a higher birth-order (fourth or more) among the finalists was only one quarter of that in the case of the null-hypothesis.

The hypothesis that first-born children have more chance of reaching the finals is supported by these findings. No unequivocal support is found for the assumption that this chance decreases with the level of birth-order.

4.2. Scores at the finals.

With regard to the chances of scoring high rather than low at the finals, the hypothesis and the assumption that these chances decrease with increasing birth-order were confirmed by the data.

First-born children among the finalists obtained the best scores. Their chance of scoring high rather than low was:

- somewhat better than the chance of second children (SR 23 versus SR 13);
- almost twice as well as that of third children (SR -8), and
- four times better than that of later-born children (SR -44).

4.3. Local background.

The finding that first-born children obtained the best scores at the finals was found to be true in each category of

local background. Among the finalists from capitals, however, first-born children did hardly better than third children. Among the finalists from other towns or from the country the chances decreased with increasing birth-order (see table I-12b B).

First-born children from capitals got three times better scores at the finals than first-born children from other towns, and they scored five times better than first-born children from the country. Except among the finalists from capitals first-born children scored three times better than fourth or later-born children.

4.4. Socio-occupational background.

There were marked differences in the chances of success at the competitions between pupils of given birth-order from various socio-occupational background (see table I-12b C).

A comparison of the proportions of finalists of given birth order as these were to be expected if birth-order would have had no influence on the chance of reaching the finals (i.e. in the case of the null-hypothesis) with the factual distribution of the finalists showed that:

- among the children of employees first-born children had the best chance of reaching the finals (conform the hypothesis);
- among the children of manual workers and especially farmers not the first-born, but third children had the best chance;
- a systematic decrease of the chance of reaching the finals with increasing birth-order was only observed among the children of teachers.

Among the children of employees first-born children had the best chances of scoring high rather than low. Their scores were half as well again as the scores of third children. Among the children of manual workers at the finals second children scored slightly better than first or third children, and two and a half times better than fourth or later children. Among the children of farmers the best scores were obtained by third children. These finalists scored almost twice as well as second children somewhat better than first-born and later-born children.

A decrease of the chances of success at the finals with increasing birth-order was only found among the children of employees.

The differences in the chances of success at the contests between the children of teachers and other employees, on the one hand, and the children of manual workers and especially of farmers, on the other, might be explained by the differences in the conditions of life between these groups. Especially in the families of farmers, children were used to help their parents. Older children were more involved in this help than younger children. The relationship between help to parents and the chances of success at the finals will be discussed in section 7.

5. Home library.

Easy access to books might stimulate children to read in their free time. It is assumed that the chances of scoring high rather than low at the finals increase with an increasing number of books at home.

Almost one half of the finalists had a home library of more than 100 titles (47.4%). One finalist out of six had 51-100 books at home (17.9%), each seventh had up to 50 books (15.0%), and one out of thirteen had no home-library (7.5%). There were 12.1% missing cases (see table I-16).

5.1. Scores at the finals.

Finalists who had more than 100 books at home scored the best (SR 29). They scored half as well again as finalists with 51-100 books, two and a half times better than those with a small home library (up to 50 books), and almost four times as well as finalists without a home library.

5.2. Local background.

The proportion of finalists with many books at home was the largest among pupils from capitals. It was slightly lower among finalists from other towns and half as large as that among rural youth. In contrast, the proportion of finalists without a home library was four times higher among rural youth than among urban pupils (see table I-16 B).

In each category of local background the chances of success at the finals were the best among pupils with many books at

home. With one minor exception (i.e. among finalists from other towns), the chances decreased the less books there were at home. Among the finalists from capitals those with many books scored more than twice as well as those with few books. Among the other finalists this difference was somewhat smaller. Finalists from capitals who had a large home library scored two and a half times better than such finalists from other towns and four times better than those from the country.

The hypothesis that the chance of scoring high rather than low at the finals improves with an increasing size of the home library was supported by the data, especially with regard to rural youth. The availability of books at home, even of a few, was positively related to the chances of success at the finals. That this relation was the strongest among rural youth could be expected, because these pupils had more difficulty getting access to libraries out of home than urban youth, especially those living in a capital.

5.3. Socio-occupational background.

The size of the home library was strongly related to the finalists' socio-occupational background (see table I-16 C). Home-libraries of more than 100 books were most frequent among the children of teachers (62.8%) and other employees (61.3%). The proportion of workers' children at the finals with that many books at home was less than half as large (25.9%) and among farmers' children it was seven times smaller (9.4%).

Small home libraries, of up to 50 books, were most often mentioned by farmers' children (34.1%) and somewhat less by the children of manual workers (29.4%) among the finalists. The proportion of employees' children with such a small home library was three times less (10.3% among teachers' children and 9.4% among the children of other employees).

Similarly, the absence of a home library was most frequent among farmers' children (34.1%). The proportion of finalists without books at home was almost three times smaller among the children of manual workers (13.9%) and ten times smaller among employees' children (3.5%).

Within each of the socio-occupational categories the scores at the finals were higher, the larger the home library was.

Exceptions to this tendency might be teachers' children without a home library and farmers' children with more than 100 books at home. In both cases the number of such finalists was too small to draw any conclusions.

The children of employees obtained more high scores than low ones (SR positive), except in the rare cases that they had no books at home. Workers' children scored more low than high (SR negative), except for the group with large home libraries. Farmers' children scored more often low than high, irrespective of the number of books at home. Nevertheless, they scored two times better when they had 51-100 books at home than when there were none or only a few.

It is to be expected that the home libraries of the children of teachers and other employees better meet the requirements for study than such libraries in the families of farmers and manual workers. This needs further research.

6. The finalist's place to study.

Success in education depends, among other things, on the material conditions to study at home. The quality of the place where the finalist studies at home will be used as an indication of these material circumstances.

Learning is favoured when a pupil has a quiet, separate room, with furniture that makes studying attractive; a room that is heated and well illuminated, where books and appliances are ready at hand. In many cases, however, pupils have no place to study. Such pupils must do their home-work at a table in the living-room or in the kitchen.

In the following analysis a distinction is made between:

- finalists who have a separate room to study,
- those who have no separate place to study, and
- a category in-between: those who have a separate place with suitable furniture in a common room (i.e. a work-corner).

More than half of the finalists had a separate study room (53.8%), one out of three had a work-corner (33.5%), and only 5.3% of the finalists had no separate place to study. In 7.4% of the cases no answer to this question was obtained (see table I-15).

6.1. Scores at the finals.

Finalists with a separate room had the best chances of scoring high rather than low at the finals (SR 21). They scored half as well again as finalists with a work-corner (SR 7) and twice as well as finalists without a separate place to study (SR -18).

6.2. Local background.

Two thirds of the finalists from capitals had a separate room to study (66.9%). Among the rural youth at the finals, one half had such facilities (50.3%). Lack of a separate place to study was reported three times more by rural youth than by finalists from capitals (see table I-15 B).

Among the finalists who had a separate room to study, those who lived in a capital scored almost three times better than those from other towns, and more than five times better than those who lived in the countryside.

Within each category of local background, finalists who had a separate room or a work-corner scored better than those who lacked such facilities. Among urban finalists there was no difference between the scores of those who had a separate room and those with a work-corner. Both groups scored about half as well again as finalists lacking a separate place to study. Among the finalists from the countryside there was a clear positive relation between the quality of the place to study and success at the finals. Finalists with a separate room scored almost half as well again as those with a work-corner and almost twice as well as those without a separate place to study.

These findings support the hypothesis that the quality of the pupil's place to study is positively related to success at the finals, especially among children who not live in a province capital, i.e. from places with a smaller educational and cultural basis that can compensate for lacking facilities at home.

6.3. Socio-occupational background.

Almost two thirds of the children of teachers (62.0%) and of other employees (65.4%) had a separate room to study (see

table I-15 C). This proportion was half as high again as among the workers' children (41.5%) and more than twice as large as among the farmers' children at the finals (30.5%).

On the other hand, one out of eight farmers' children lacked a separate place to study (12.7%). This proportion was somewhat larger than among the workers' children at the finals (10.6%) and it was four times larger than among the children of teachers (2.9%) and of other employees (3.6%).

When socio-occupational background was held constant, there remained a positive relationship between the quality of the place to study and success at the finals. In each category of socio-occupational background the finalists with a separate room did only slightly better than those with a work-corner. With the exception of the children of teachers, those who had a separate place to study scored much better than those who lacked such a facility.

Irrespective of the quality of the facilities to study at home, employees' children obtained more high scores than low ones at the finals. The children of farmers and manual workers scored more low than high. Probably, the housing-conditions of the families of farmers and workers were not as good as in other families. Farmers and manual workers might also be less aware of the importance of a separate place to study for their children.

7. Help to parents.

It is to be expected that children who rarely help their parents and pupils who are very involved in such help have less chances of success at the finals. A moderately burdening, but regular help to parents might shape feelings of responsibility, skill in problem handling, and concentration when working on a task. Rather long-lasting employment with help to parents might be at the expense of the time needed for study and relax, and it might fatigue the child so much that it hinders learning.

The finalists usually helped their parents. Finalists who said they never helped were rare (0.9%). Help lasting up to one hour a day was given by 7.2% of the finalists. In most cases the finalists spent between one and two hours a day helping their parents (54.8%) or between two and three hours daily (18.6%). Help to parents lasting more than three hours a day was

mentioned by 9.8% of the finalists. There were 8.7% missing cases on this variable (see table I-18).

7.1. Scores at the finals.

The best scores at the finals were obtained by pupils who spent between one and two hours a day helping their parents (SR 23). This was somewhat better than the scores of those who spent less time or did not help at all (SR 16); it was more than one and a half times better than the scores of finalists who helped between two and three hours, and it was more than twice as well as the scores of those who spent more than three hours daily.

These findings are in accordance with the hypothesis that it is most favourable when a moderate amount of time is spent in helping parents.

7.2. Local background.

The effect of help to parents occurred to be quite different in the various categories of the place of residence (see table I-18 B).

- Among finalists from capitals the best scores were obtained by those who spent between one and three hours daily helping their parents. These finalists scored almost twice as well as those who spent more time or less.
- Finalists from other towns had the best chances of success when they spent up to one hour daily helping their parents. Their chances decreased the more time they spent.
- Among finalists from the countryside no relation could be seen between the amount of help to parents and their chances of success.

7.3. Socio-occupational background.

When the finalists were distinguished according to their socio-occupational background, it could be seen that in each category the proportion of those who spent between one and two hours a day helping parents was the largest. Whereas this amount of time was mentioned by almost two thirds of the children of teachers and other employees, one half of the workers' children

and one third of the children of farmers stated that they helped between one and two hours a day (see table I-18 C).

Finalists who said they never helped their parents or did so less than an hour a day were most frequent among the children of teachers (9.2%) and other employees (9.7%). This answer was given less by workers' children (7.2%) and three times less by farmers' children (3.3%). Help to parents of more than three hours daily was reported most often by the children of farmers (26.6%); it was half as often mentioned by workers' children (12.6%), and three times less by the children of teachers (9.2%) and other employees (7.4%).

Among the finalists who helped their parents between one and two hours a day, the children of employees obtained twice as many high scores as low ones (SR 34). The children of teachers scored somewhat lower than the children of other employees. The latter scored three times better than workers' children, and five times better than the children of farmers.

Among the children of employees, those who spent between one and two hours a day with help to their parents obtained the best results at the finals. The longer the daily help, the lower the scores. Those who spent few time helping parents scored half as low again.

Among the children of workers and of farmers, those who helped between one and two hours also did relatively well at the finals. However, children who helped between three and four hours daily, and among the children of workers also those who helped up to one hour a day, had slightly better scores.

7.4. Conclusions.

The hypothesis that a moderate time-expenditure for helping parents is the most favourable for success at the finals is not wholly confirmed by the findings. More than average help to parents appears to have a positive effect on the chances of success at the finals among rural youth and children of manual workers and farmers.

When children of farmers and some manual workers help their parents, they must do this often in their presence and under their guidance. When thus working together with their parents, the children may observe how their parents work, they may pose

questions and learn in this way. Help to parents is probably of quite a different kind among children of employees and urban youth. This help will mainly consist of domestic work, to be done when the parents are still at work out of doors. Such individual work will only take the pupils' time and not give them the opportunity of learning from adults or gaining their esteem. Further research is needed to prove this hypothesis.

8. Free time.

Free time was defined as the time out of obligatory lessons at school, participation in circles of interest or youth-organisations, help to the parents, and out of all planned activities to which the pupil committed himself to others. Free time was thus the time the pupil could freely dispose of, which could be spent for activities he actually chose to do.

It was expected that finalists with rather little or rather much free time would have less chances of success at the finals than those with a moderate amount of free time. Children of farmers and manual workers were expected to have less free time than children of employees.

Only a few finalists (2.0%) answered to question 1-19a (see table) that they had no free time at all. The modal category of free time was between one and two hours daily (33.6%). Up to one hour of free time a day was mentioned by 10.5% of the finalists. Above the mode, the proportion of finalists steadily decreased with increasing free time: 23.4% had between two and three hours a day, 12.3% had between three and four hours, and 9.5% had more than four hours free time daily. There were 8.6% missing cases on this question.

8.1. Scores at the finals.

Contrary to the hypothesis, pupils with a moderate amount of free time, i.e. between one and two hours a day, did poorly at the finals (SR 1). Both the pupils with more free time and those with less of it scored much better. Finalists with more than four hours free time daily scored more than twice as well as those with 1-2 hours. Pupils without free time did a half as well again as the latter. Among the finalists who had at least

one hour free daily the scores improved with increasing amounts of free time.

8.2. Local background.

The general relation between the amount of free time and success at the finals could be seen in each type of residence: those with much free time scored half as well again as those who had between one and two hours free (see table I-19a B). Pupils who had less than one hour free time a day also tended to score better than the latter.

Among the finalists from capitals, those with little free time did the best: almost two times better than those with 1-2 hours free. Similarly, among rural youth at the finals those who had little free time scored fairly well. They scored half as well again as those who had 1-2 hours free. Among the finalists from other towns there was no difference in the scores of those who had little free time and those with 1-2 hours free.

Finalists who had between one and two hours free scored two and a half times better when they lived in a capital than in another town, and more than five times better than when they lived in the countryside.

8.3. Socio-occupational background.

In each of the four categories of socio-occupational background the mode consisted of pupils who had between one and two hours of free time a day (see table I-19a C). The proportion of these finalists was especially large among farmers' children (44.3%). Among workers' children it was 40.7%; among teachers' children 35.1%, and it was the lowest among the children of other employees (31.9%).

Finalists who had more free time were mainly found among the children of teachers (50.8%) and other employees (51.6%). Among the children of farmers and manual workers the proportion of those with more than two hours free was much smaller (28.5% and 42.3%). The proportion of finalists with less than one hour free time was the largest among farmers' children (24.4%): about twice as large as among the children of manual workers (14.0%), teachers (10.4%), and other employees (12.7%).

Except for the children of farmers, among whom no clear relation could be seen, in each socio-occupational category the chances of scoring high rather than low were the least among the finalists who had 1-2 hours of free time a day. The chances improved with increasing difference in the amount of free time, especially among workers' children.

8.4. Conclusions.

The findings did not support the hypothesis that pupils who had an average amount of free time had the best chances of success at the finals of the competitions. Quite contrary, it was found that pupils with much free time and those with little had the best scores. The group with a moderate amount of free time (1-2 hours daily) scored the least high rather than low. This relationship between the amount of free time and success at the finals was also found when the influence of the place of residence or of the socio-occupational background was controlled for. Among farmers' children no relationship between free time and success at the finals could be found.

The finding that pupils who had little free time did well at the finals might indicate that these pupils spent much of their time in an organized manner, e.g. in circles of interest, and so learned effectively. Good results of finalists who had much free time might be an indication of the use of this time for private study.

It may be concluded that the amount of free time was less important for success at the finals than the way in which that time was filled.

Children from the country, especially farmers' children, may have had difficulty to indicate how much free time they had and how they used it. Many of them spent much time travelling to and from school. Some made good use of that time, for others this time was entirely lost. Another reason for the absence of a relationship between the amount of free time and success at the finals might be that the time-schedules of farmers' children varied largely, depending on the kind of farming.

XII. THE FINALISTS' ORIENTATION IN LIFE

In this chapter some aspects of the finalists' orientation in life and the relation of these factors with the chances of success at the competitions are discussed. Attention is given to: interests and collections, especially those related to the subject of the competition; professional ambitions, and the pupils' notions of success in life.

Pupils who are not only interested in the subject of the competition, but in other matters as well are expected to have the best chances of success. Concentration on the subject of the contest might be less favourable than broader interests, but better than a lack of interests and professional ambitions.

Success in education is a form of social success. It is to be expected that pupils wish to be successful in various fields of life. The place of success in education in the finalists' orientation will be discussed on the basis of their reactions to the question what they would consider their greatest success in life.

1. Interests.

The finalists have been asked about their interests both in and out of school. The latter have been compared with their free time activities.

1.1. The interest in school subjects.

The majority of the finalists (53.7%) were interested in the subject of the competition and in other matters as well (see table I-20). This points to a broad interest. One finalist out of five had an interest concentrated on the subject of the competition only. It follows that three quarters of the participants in the finals were really interested in the subject. The other finalists were interested in other matters than the subject of the competition.

Very few finalists (less than one percent) said that they had no interest in school subjects at all.

1.1.1. Scores at the finals.

Relatively many finalists who obtained high scores had an interest concentrated on the subject of the competition. Those who scored low rather often were interested in other matters, and not in the subject of the contest. Thus, the chances of success at the finals were the best for pupils whose interest was only in the subject of the competition. These finalists scored half as well again as those who were only interested in other matters.

1.1.2. Local background.

The relation between the pupils' interests and the scores at the finals were different within the three categories of local background, although participants whose interests were dispersed over other matters than the contest's subject always had the least chance of scoring high rather than low (see table I-20 B).

Those among the finalists from capitals who were only interested in the subject of the contest scored almost twice as well as those who were also interested in other matters. Among rural youth the latter scored slightly better than the former.

1.1.3. Socio-occupational background.

The proportion of pupils with an interest concentrated on the subject of the competition decreased the more privileged their parents' socio-occupational position (see table I-20 C).

Pupils with such a concentrated interest scored half as well again as those who were also interested in other matters. Among farmers' children, on the contrary, those with a broad interest obtained better scores than those who concentrated on the subject of the competition.

1.2. Out of school interests and activities.

The finalists were asked about the kind of their out of school interests and activities (see tables I-20b and I-19b). Only very few finalists said they had no interests or activities out of school. One percent of the finalists had no free time.

Interests and activities ran largely parallel: intellectual ones were mentioned most, followed by sport and amusement.

Less than 10% of the finalists mentioned interests and activities in the field of technology, art, or of a sociable kind; few mentioned social work. Finalists who had out of school interests mentioned on the average 1.5 fields. The average number of types of free time activities was larger: 2.1.

1.2.1. Scores at the finals.

The out of school interests of the finalists who obtained high scores differed from those of the low scorers by a larger share of intellectual, artistic, and technical interests, and a rather low proportion of sport and sociable interests. Those with an interest in intellectual matters or in art scored half as well again as finalists interested in sports.

Pupils who scored high at the finals hardly differed from those who scored low, with regard to their free time activities. The only significant differences were in the small categories of activities in art (larger among the high scorers) and sociable activity (more frequent among those who scored low).

1.2.2. Local background.

When the influence of local background was controlled for, the scores of the finalists in the subsequent categories of free time activities differed at most a factor two. The differences between the scores of finalists with the various out of school interests were smaller.

Finalists living in a capital scored the best when their interests were in the field of art or of an intellectual kind. These finalists scored half as well again as those with an interest in sport or technology. With regard to their free time activities, the best scores were obtained by those active in amusement and art.

Finalists from other towns obtained the best scores when their interests and activities were in the field of technology. The lowest scores were obtained by pupils with interests and activities in other fields than the specified categories.

Rural youth had the best chance of scoring high rather than low when their interests and activities were in the field of art. In other cases their scores did not differ very much.

1.2.3. Socio-occupational background.

The relative frequency of the various fields of interest and activity was found to be very much the same within the four socio-occupational categories. Teachers' children were somewhat more interested and active in the field of art, and the children of manual workers in technology.

Children of teachers obtained the best scores when their interests were of an intellectual kind or in the field of art. In the category of remaining fields they scored more low than high. With regard to their free time activities they had distinctly the best chances in the category of art and the least in that of sociable activities.

Among children of other employees there was almost no relation between their interests and activities, and the scores at the finals.

Children of manual workers obtained the best scores when they were interested or active in the field of technology. Their chances were rather low when they were interested in amusement or their activities were of a sociable kind.

Among farmers' children the scores did not differ much between those interested or active in intellectual matters, sport, or amusement. The number of farmers' children with other interests or activities was too small for further analysis.

1.3. Conclusions.

Finalists whose interests were concentrated on the subject of the competition had the best chances of success. They scored not only better than those who were not specially interested in that subject (as it was expected), but also better than those who, besides the subject of the competition, had also other interests. The latter finding was contrary to the hypothesis. Concentration on one subject was probably necessary to master it perfectly: a condition for success at the contest.

Further research is needed to investigate the effect of concentration on one subject on the chances of success in school and in other fields of life.

Out of school interests and activities were only weakly related to the chances of success at the finals.

2. Collections.

A large majority of the finalists collected something (see table I-17). Only 12.4% stated not to have any collection.

Most collections consisted of things not regarding a certain theme: stamps, labels, match-boxes, coins. Finalists who had thematic collections mostly collected things related to various fields of science (14.3%). Some had collections in the field of technology (4.5%) or art (4.3%).

2.1. Scores at the finals.

In comparison to those who scored low, the finalists who got high scores had more collections, especially in the field of science or technology.

Finalists with a collection scored better than those without. Those with a collection in the field of technology had the best scores: they did somewhat better than those with one in science, almost half as well again as those with other collections and almost twice as well as finalists without one.

2.2. Local background.

The relation between the finalists' collections and their scores remained unchanged when local background was held constant, with one exception. Finalists with a collection in the field of art had the lowest scores among those who lived in a capital, and did the best among rural youth (presuming that 28 cases were sufficient to draw a conclusion from - see table I-17 B).

2.3. Socio-occupational background.

Children of manual workers and farmers among the finalists had fewer collections than children of employees. Especially few among the former had collections in the field of technology (see table I-17 C).

Within the subsequent categories there were different relations between the kind of collections and the scores at the finals.

- Teachers' children had the best scores when they collected objects in the field of art. These finalists scored more than two times better than teachers' children without a collection.
- Children of other employees had the best scores when they had a collection in the field of technology. The difference between the scores of pupils with various kinds of collections were not large and employees' children without a collection scored also very well. Children of employees with a collection in the field of art had the least chance of scoring high rather than low.
- The number of workers' children with a collection in the field of technology or art was too small to draw any reliable conclusions from. The relation between the kind of their collections and their scores at the finals seemed to be very similar to that among children of employees apart from teachers.
- The number of farmers' children with thematic collections was too small for further analysis. The fact that there were only very few children of farmers with a collection in the field of art explains why rural youth with such a collection did very well: this group of finalists consisted mainly of teachers' children.

3. Professional ambitions.

Pupils who succeed in reaching the finals of the contests in Polish language or in mathematics may be expected to be successful in almost every profession, and certainly one related to the subject of the competition. A proof of this assumption would, of course, require research on the further career of the finalists. Research on gifted children shows that they see a wide variety of ways to success. The choice out of many alternatives may be difficult, especially for the most able pupils (Clements-Blackburn & Erickson 1986).

A majority of the finalists mentioned a certain field in answer to the question on their professional ambitions (see table I-31). Besides 10.1% missing cases, there were 14.2% cases in which the finalists at the time of the contest, i.e. when a secondary school had to be chosen, did not as yet know which profession they would prefer. Moreover, 4.6% of the finalists

answered that they aspired to a profession of high social status, without further specification.

The proportion of finalists aspiring a profession linked to Polish language and literature (8.7%) was about the same as that of finalists who wanted a profession in mathematics (8.8%). The most frequent category of the answers was that of technical occupations (20.4%). Substantial numbers of finalists mentioned aspirations in the field of humanities (15.1%) and medicine or the natural sciences (12.6%). A professional career in art or other specific fields was aspired to by respectively 2.1% and 3.3%.

3.1. Scores at the finals.

The chance of scoring high rather than low at the finals was the best for pupils aspiring an unspecified profession of high social status. These finalists scored almost five times better than those with aspirations in a specific field that was not analysed in detail (the category with the lowest scores).

Very good scores were also obtained by finalists with vocational ambitions connected with mathematics and by those who did not as yet know which profession they would prefer. Pupils with ambitions connected with Polish language and literature scored somewhat lower. These categories of finalists with the best scores did half as well again as those with vocational ambitions in the fields of technology or art, and twice as well as those with aspirations in the fields of humanities, medicine or the natural sciences. The latter had more chance of scoring low than high.

3.2. Gender.

Girls among the finalists mentioned vocational aspirations in the fields of humanities (22.4%), Polish language and literature (12.5%), medicine or natural science (16.7%), and art (3.1%) about three times more than boys. Many boys (35.5%) wanted a technical profession: three times more than girls. The proportion of boys aspiring a profession in the field of mathematics (12.5%) or of high status (7.6%) was about twice as high as that among girls.

Those among the girls aspiring a profession of high social status scored distinctly the best. These girls scored half as well again as those who did not know as yet which profession to choose or who aspired to a career connected with Polish language and literature, mathematics, or art.

Among the boys the best scores were obtained by finalists with aspirations connected with Polish language and literature. They did slightly better than those with professional ambitions connected to mathematics or who did not as yet know which career to choose. These three groups did half as well again as the boys who wanted a profession of high status, and they scored twice as well as the largest group: the boys who aspired to a profession in the field of technology.

Both among girls and boys those who aspired to a profession in medicine or the natural sciences, and - especially among the girls - those who wanted an occupation in a field that was not analysed in detail had the least chances of success.

3.3. Socio-occupational background.

The distribution of the subsequent professional ambitions was quite similar within each category of socio-occupational background (see table I-31 C). Among the children of employees were somewhat more with aspirations connected with Polish language and literature (10% versus 7-8%). Among the children of farmers were half as many with aspirations connected with mathematics (5%) and also rather few who did not know as yet which profession to choose (8% versus 13-17%), who wanted a profession of high status (3% versus 4-6%), or in the field of art. Among farmers' and workers' children more finalists aspired to a profession in the field of humanities (23% and 20%, versus 16% of the children of teachers and 13% of other employees) and many more wanted a profession in a field that was not analysed in detail (7.8% of the children of farmers and 5.3% of manual workers, versus 2.5% employees' children).

Among teachers' children the best scores were obtained by those who aspired to a profession related to mathematics. These children scored three times better than those who wanted a profession in the field of medicine or the natural sciences. The latter had somewhat more chance of scoring low than high.

The best scores among the children of other employees were obtained by those who did not as yet know which career to choose. These finalists scored four times better than those who wanted a profession in a field that was not analysed in detail.

The best scores among the children of manual workers were obtained by those who aspired to a profession related to Polish language and literature. This group scored six times better than those aspiring a career in a field that was not analysed in detail.

The number of farmers' children was too small for a detailed description.

3.4. Subject of the competition.

More finalists of the contests in Polish language wanted an occupation connected with the subject of the competition (18.2%) than finalists in mathematics (14.5%). Humanities were the most popular among the finalists in Polish language (24% versus 9%), whereas technical occupations were preferred the most at the finals in mathematics (29% versus 12%). Professions in the field of medicine and the natural sciences were more popular among the finalists in Polish language than mathematics (17% versus 10%).

The proportion of finalists who had not yet chosen a field for their future career was much smaller at the competitions in Polish language than in mathematics. At the former there were 11.6% participants who did not know as yet which occupation they would like and 3.0% aspired to an unspecified profession of high status. At the finals in mathematics the proportions were 17.7% and 6.5% respectively. At the finals in Polish language were also less pupils who did not answer the question (3.0% versus 6.3%).

Those finalists in Polish language aspiring an unspecified profession of high status obtained the best scores. The few pupils at these finals who wanted a career in mathematics did also very well. Both groups scored somewhat better than those with ambitions in the field of Polish language and literature, or art; they did half as well again as those who had not as yet made their choice, twice as well as those who desired a career in the fields of humanities, technology, or medicine and the natural sciences, and they did five times better than those with

concrete, but here not specified ambitions.

At the finals in mathematics the few whose professional ambitions were connected with Polish language and literature had the best chances of success. These pupils scored half as well again as those who had not as yet made their choice, wanted an unspecified occupation of high status, or had professional ambitions connected with mathematics. They scored twice as well as finalists who wanted a career in technology and about five times better than pupils with ambitions in humanities, medicine and the natural sciences, or specific other fields here not further analysed.

3.5. Conclusions.

The ambitions of the girls at the finals in each subject were primarily in the fields of humanities (especially at the finals in Polish) and medicine and the natural sciences. Boys mainly aspired to a career in technology.

The finalists with ambitions in fields that were the most popular among youth of their sex scored below the average. There seemed to be a tendency for youth with atypical ambitions (f.i. boys with aspirations in Polish) and for participants who hesitated to choose a certain field for their future career to have the best chances of success at the finals.

A further analysis of the data, to prove these assumptions, was hampered by the rather small number of finalists in the most interesting categories. Further research is needed to provide evidence for such relations and to find explanations for the relationships between the subject of the competition, gender, professional ambitions, and success.

4. The finalists' notions of success in life.

The finalists were asked what they considered as the greatest success in life (see table I-33).

The concern of the present study with success in education was found to be well in line with the notions of success in life among the finalists. Attainments in education were mentioned as a great success in life by half of them: 18.9% considered attainments in secondary education to be such a success and

32.4% at the university.

The second largest category of notions of success in life consisted of realizing a desired occupation. Obtainment of the occupation of their own choice was mentioned by 21.2% of the finalists; 7.1% aspired to an occupation favourable from a social or moral point of view, and 5.6% thought themselves successful when they could do scientific work. The latter notion of success may also be interpreted as success in education.

The third group of notions consisted of success at reaching a distinguished position: to be creative (7.6%) or to become famous (5.0%).

The group of notions that was fourth in size consisted of achievements in (not necessarily professional) altruistic activities: to devote themselves to others (3.9%), to be a good Pole (1.9%), to do something for humanity (1.7%).

Ideas of success related to personal life were mentioned rarely: to be loved (2.5%), a happy family (1.9%), personal happiness (1.2%). A materialist notion of success was mentioned by very few pupils: a materially profitable job (0.2%), wealth (0.5%).

A comparison of the finalists' notions of success in life with those of other pupils (Wiśniewski 1978; Nakielska 1979) pointed to different attitudes. Success in life was mainly seen by finalists in relation to education, profession, and creativity, whereas it was markedly less associated with the family or personal life.

4.1. Scores at the finals.

Finalists who had one of the most frequent notions of success (e.g. related to education or the professional career) had about as many high scores as low ones. Those who had clearly altruistic ideas of success scored much better: pupils who thought themselves successful when they would be loved scored almost four times better; those who considered a happy family to be a great success, or thought themselves successful when they would be creative, famous, or could do something for others did about twice as well.

4.2. Socio-occupational background.

Within each category of socio-occupational background about one half of the finalists considered achievements in education to be a great success in life (see table I-33 C). Those whose parents had a less privileged occupational position mentioned success in secondary education more than those from a more favourable socio-occupational background. A similar, but weaker relation between socio-occupational background and the notion of success was found for realizing a desired occupation. Realizing a distinguished position (to be creative, to become famous) was about twice as often considered a great success by children of employees as of farmers or manual workers. The proportions of the other categories of answers were very similar in each socio-occupational group.

In so far as the number of cases was sufficient for further analysis, the relation between the finalists' notion of success and the scores at the finals seemed to be independent of the socio-occupational position of the parents.

5. Summary.

A large majority of the finalists, especially those who scored high, had broad interests, primarily related to the subject of the competition. One finalist out of five was not interested in the subject of the contest but in other matters. Very few were not interested in school-subjects at all.

Out of school interests and free time activities were mostly of an intellectual kind. Sport and amusement were also frequently reported. Whereas finalists who scored high differed from those who scored low in that they were more interested in intellectual matters, their activities during their free time were very similar to those of the low scorers.

Most finalists had collections, although usually not specialized in a certain theme. Thematic collections were mainly in the field of science and less in those of technology or art. Finalists with some kind of collection scored better than those without one and those with a collection in technology or science scored better than finalists with other collections. Children of employees had more collections than other finalists.

The finalists' professional ambitions were mainly in the field of technology, humanities, medicine and natural sciences. A substantial number of the finalists had by the time of the contest no concrete idea about the profession they would like to have. Especially among the girls, this group of finalists did very well. This finding could indicate that the most able pupils had much difficulty in choosing a discipline, because they could be successful in several fields.

Very good scores were obtained by the few finalists in Polish language with professional ambitions in the field of mathematics, and by the few at the finals in mathematics who aspired to a career in Polish language and literature. Finalists with professional ambitions in the very subject of the contest also did relatively well.

The finalists associated success in life primarily with success in education. Another frequently mentioned notion was realizing a desired occupation. Less frequent notions were: to reach a distinguished position, attainments on behalf of others, and success in personal life. Materialist ideas of success in life were rare. The finalists with clearly altruistic notions of success scored better than others. Those who considered being loved to be the greatest success in life had the best scores.

XIII. CHARACTERISTICS OF THE FINALISTS

In this chapter some traits of the finalists are presented in relation to their scores at the finals. First, a comparison is made between girls and boys, with regard to their chance of reaching the finals, their scores, the subject of the contest, and social background. Next, some personal traits are discussed which were mentioned by their teachers as being distinct from their class-mates. The frequency of preparation for the contest is discussed as an indication for the finalists' diligence. Their level of knowledge is indicated by statements of the organizers of the competitions and by their school marks. The finalists' abilities, particularly creative ones, are assessed on the basis of comparisons the teachers made with the abilities of other pupils. Finally, attention is given to temperament and the occurrence of defects of character and of physical handicaps among the finalists.

Relationships between the various characteristics of the pupils and their scores at the finals are investigated further by controlling for socio-occupational background and, when relevant, for local background as well.

Much of the information to be discussed in this chapter has been based on opinions of teacher-promoters and subject teachers in secondary school. Similarities and differences in the opinions of both groups of teachers are discussed here on the level of the whole group of finalists about whom information was collected. More precise information on this matter might be obtained by a comparison of these opinions on an individual level. A detailed analysis of a sample of 90 finalists (in which the children of employees, manual workers, and farmers were represented equally) led to the conclusion that the laborious comparison on an individual level hardly added to the knowledge gained by groupwise comparison.

1. Gender.

In this section differences will be discussed in the participation of girls and boys at the finals (see table I-2). This will be done with regard to their scores, the subject of

the competition, their local background, and their parents' occupation.

1.1. The chance of reaching the finals.

Girls had one and a half times as much chance of reaching the finals as boys. The difference in participation was rather small at the competitions in mathematics, where there were more boys than girls, but in Polish language the girls outweighed the boys almost four times.

1.2. Scores at the finals and subject of the competition.

The chance of scoring high rather than low was for the boys somewhat better than for the girls (SR 22 versus 9).

Girls scored equally well at the competitions in Polish language as in mathematics. At the former contests they scored slightly better than the boys (see table I-2 A). At the contests in mathematics, however, the boys scored half as well again as the girls.

1.3. Local background.

The proportion of boys at the finals increased with the level of urbanization of their place of residence (see table I-2 B).

Among the urban finalists the boys scored better than the girls, but girls and boys from the countryside had about equal chances of scoring high rather than low. The difference between the scores of girls and boys was the most distinct among finalists who lived in a town not being a province capital. In that case the boys did half as well again as the girls.

1.4. Socio-occupational background.

The proportion of girls at the finals was larger than that of the boys in each of the socio-occupational categories (see table I-2 C). The majority of the girls was the most pronounced among farmers' and workers' children, where the proportion of the girls was twice as high as that of the boys. Among the

children of employees it was almost one and a half times as high.

Whether girls or boys, the children of employees obtained more high scores than low ones. The children of workers and farmers, in contrast, scored more low than high.

In each of the distinguished socio-occupational groups the boys scored better than the girls. This difference was most clear among farmers' children (of whom the boys did half as well again as the girls); it was somewhat smaller among workers' children, much smaller among teachers' children, and among the children of other employees it could be neglected.

1.5. Conclusions.

In spite of an over representation of girls at the finals, the boys scored better, especially at the competitions in mathematics. These better scores of the boys were mainly made by those from a less favourable socio-occupational background.

The scores of girls and boys were not much different among finalists from the countryside. This might be explained by an over representation of the daughters of employees living in the country.

The differences might be explained by a stricter selection of boys for the competitions, and partly by the fact that daughters of manual workers, and especially of farmers, were much more burdened with helping their parents than boys in these socio-occupational categories.

Such hypotheses would have to be tested in a more detailed analysis.

2. Distinctive traits of the finalists.

In the opinion of the teacher-promoters the finalists often distinguished themselves from their class-mates by the following traits (in decreasing order - see table III-1):

- diligence and perseverance;
- correctness and originality in oral statements;
- aptitude of formulation in writing;
- competence in problem-solving;
- reliable and logical memory;

- thorough knowledge of the subject of the competition;
- comradeship and helpfulness;
- capacities of leadership;
- sense of humour;
- ability to submit to others.

Thus, in comparison to their class-mates finalists differed with regard to their determination and intellect, rather than by traits of social behaviour.

2.1. Scores at the finals.

Diligence and perseverance were mentioned as the most frequent trait of all finalists, whether they scored high or low (35%). This implied that these traits were highly relevant for the chance of reaching the finals, but unrelated to success at the finals.

Characteristics related to intellect were mentioned more as traits of finalists who obtained high scores than of those who scored low. These traits were mentioned the most frequently after diligence and perseverance. Therefore, intellectual traits were highly relevant for the chances of success at the contests, both in terms of the chances of reaching the finals and scores.

Pupils who distinguished themselves by thorough knowledge of the subject of the competition scored more than twice as well as those who did so by traits of social behaviour. Finalists who distinguished themselves by competence in problem solving or other characteristics related to intellect did about two times better than those whose distinctive traits were related to social behaviour.

2.2. Opinions of the teachers in secondary education.

The proportions of finalists who were said to distinguish themselves among their class-mates with regard to the given traits, were up to three times fewer in the sample of teachers in secondary school than in the sample of teacher-promoters. The rank-order of the various traits was quite similar to that in the sample of promoters. Major exceptions were the ability to submit to others, which was rather often mentioned by secondary school teachers, and competence in problem solving, which had a

rather low rank.

Among the teachers in secondary education there were marked differences in their opinions on finalists who scored high and those who scored low. All subsequent traits were mentioned more as typical for high scorers than for low scorers. The difference between these groups of finalists was especially large with regard to: correctness and originality of expression (mentioned as a distinctive trait of 17.9% of the high scorers, versus 4.1% among the low scorers), diligence and perseverance (18.0% versus 5.4%), knowledge of the subject (13.7% versus 3.0%), competence in problem solving (10.7% versus 3.2%), and capacities of leadership (12.7% versus 4.1%).

A further comparison of the opinions of teachers in primary and secondary education will be discussed in section 6.

2.3. Socio-occupational background.

When the finalists are differentiated with regard to their socio-occupational background (see table III-1 B) one notices that in the opinion of their teacher-promotor:

- farmers' children especially distinguished themselves by their diligence and perseverance;
- the children of farmers and teachers excelled rather often in the correctness and originality of expression, both oral and in writing;
- teachers' children excelled in their knowledge of the subject of the competition;
- capacities of leadership were somewhat more distinctive for children of employees.

Success at the finals was mainly related to intellectual traits, at least among the children of teachers and other employees. Children with a great knowledge of the subject of the contest, those with a reliable and logical memory, and the problem solvers among the finalists scored almost twice as well as the finalists who distinguished themselves by comradeship and helpfulness (except among workers' children), capacities of leadership and the ability to submit to others.

Among workers' children comradeship and helpfulness were found to be more important for the chances of success at the finals than a reliable and logical memory. In contact with

others thinking can be developed, and among workers' children this might have been more decisive for success than a reliable and logical, but perhaps rather mechanical memory.

2.4. Gender.

The girls among the finalists were more often said to be diligent than the boys (39% versus 27%), to have capacities of leadership (24% versus 14%), or the ability to submit to others (18% versus 11%), and to be helpful and a good companion (26% versus 13%). Knowledge of the subject of the contest and competence in problem-solving were mentioned more often for boys than for girls (respectively 29% versus 19% and 35% versus 22%).

Both girls and boys with a profound knowledge of the subject of the competition had the best chances of success at the finals. Among the finalists with a given distinctive trait the boys did better than the girls, except among those who distinguished themselves by correctness and originality of their oral statements or by their sense of humour. Among the pupils whose distinctive trait was their diligence and perseverance the boys scored almost twice as well as the girls.

3. Level of knowledge.

It followed from the statements of the organizers that the majority of the participants at the finals had a high level of knowledge. Some typical statements were:

"The knowledge of the winners reached significantly beyond the obligatory program. Their knowledge of the work and of facts in the lives of selected authors was impressive" (M.L.)

"Most works had a theoretical thread, and included many individual opinions" (A.W.).

"The finalists showed in their work an interest in Polish language and literature, as f.i. in poetry, film, memoirs" (O.D.).

The following opinions were very rare:

"Some finalists did not even know the basic literature of the primary school curriculum" (K.S.).

"It happened that finalists repeated whole pages from books, but were unable to tell in their own words what had been said before" (I.M.).

The organizers of the contests described most finalists and all the winners as persons of outstanding ability.

4. Frequency of preparation for the competition.

The finalists have been asked how often they prepared for the competition (see table I-25). One finalist out of six said he prepared daily (16.2%); almost one out of three prepared every other day (29.6%); somewhat less than half of the finalists prepared less (44.1%), and a few said they did not prepare at all (2.4%).

4.1. Scores at the finals.

The best scores were obtained by pupils who prepared daily for the contest. These finalists did half as well again as those who prepared every other day, but they scored only slightly better than finalists who prepared less than every other day or not at all.

4.2. Local background.

The proportion of the finalists who prepared daily was much larger among rural youth than among pupils who lived in town, especially in a capital (see table I-25 B). There was a negative relationship between the level of urbanization of the finalists' place of residence and the frequency of preparation.

Irrespective of how frequently they prepared for the competition, finalists from capitals scored more high than low and rural youth obtained more low than high scores.

The expected positive relationship between the frequency of preparation and success at the finals was clearly present among rural finalists and those living in a town not being a province capital. Among the children from capitals, however, the relation between the frequency of preparation and scores was mainly negative.

Frequent preparation for the competition was most fruitful for finalists from the countryside. Those who prepared daily did twice as well as rural youths who prepared less often.

For finalists from towns (not capitals) there was not much difference in their chances when they prepared daily or every other day. When these children prepared less than every other day, however, their chances were halved.

Among the finalists living in a capital those who did not prepare at all scored more than two times better than those who prepared at least every other day.

4.3. Socio-occupational background.

The proportion of finalists who prepared daily for the competition was the largest among the children of farmers and teachers (see table I-25 C). It was about one and a half times as large as among the children of other employees and manual workers. An inverse relationship was noted for finalists who prepared less than every other day or not at all.

Irrespective of the frequency of preparation, there were more high than low scores among the children of employees, and more low than high scores among the children of farmers. Among workers' children the proportion of high scores was larger than that of low ones only when they prepared daily. When these finalists prepared less they had less chance of scoring high than low.

Among the children of farmers and workers the chances of success at the finals improved considerably, the more they prepared for the competition. It was about twice as well when these finalists prepared daily as when they prepared less than every other day. Among the children of employees there was no clear relationship between the frequency of preparation and the chance of scoring high rather than a low.

4.4. Conclusions.

Systematic learning was very important for children with a less favourable social background (rural youth, working-class or peasant children). For pupils from privileged social groups systematic learning seemed to be less relevant to success at the finals. These children probably could also develop their abilities in other activities, e.g. visits to museums, theatres, movies; programs on radio or TV; playing draughts, chess. Such activities were often hardly accessible to pupils from less privileged social groups.

5. School marks.

The finalists were asked which marks they got in the first semestre (see table I-7).

Almost one out of three finalists had only very good marks (29.7%). The mode (42.9%) was formed by finalists who had more very good marks than good ones. One out of eleven (9.3%) had more good than very good marks. Somewhat less (8.2%) did only sufficiently in at least one subject, and very few finalists (0.2%) had at least one mark insufficient.

As has already been mentioned, the Ministry of Education advised against the admission of pupils with insufficient marks to the competitions.

5.1. Scores at the finals.

Finalists who obtained high scores at the competitions had better marks than those who scored low. There were particularly more pupils with only very good marks among those who scored high (34.0% versus 27.5%).

The answers to question I-8 (see table I-8) showed that the finalists had considerably better marks for the subject of the competition and related subjects than for all subjects. More than twice as many (59.3%) had only very good marks for these subjects. Half as many (18.2%) had more very good marks than good ones. Somewhat more (13.5%) got more good than very good marks for these subjects than for all subjects. Few finalists (2.2%) did only sufficiently well in at least one of these subjects. No finalist had one or more marks insufficient for the subject of the competition or related subjects.

In comparison to finalists who scored low, those who got high scores had better marks for the subjects in the field of the contest. The proportion of those who had only very good marks was 66.9% among the high scorers and 56.2% among the low scorers. The proportion of pupils with more good than very good marks was lower among those who scored high at the finals (11.2% versus 18.5% of the low scorers).

The better their marks, the more chance the pupils had of scoring high rather than low at the finals, although those who did only sufficiently well in at least one subject scored better

than the finalists who had more good than very good marks.

Finalists who had only very good marks did twice as well as those who had more good than very good marks, whether in all subjects (SR 24 versus -15) or in the subjects related to the competition (SR 22 versus -11).

5.2. Marks in secondary school.

In secondary education too, finalists had better marks than their class-mates. The proportion of pupils with more very good marks than good ones was among finalists more than three times larger than among their class-mates who took part in the competitions but did not reach the finals (45.9% versus 13.4%) and it was 12 times larger than among class-mates who did not participate in the contests (3.8%).

The number of pupils with more sufficient or insufficient marks than good or very good ones was the lowest among finalists (9.0%). Among class-mates who took part in the contests but did not attain the finals it was more than three times larger (32.7%) and among those who did not participate in the contests it was more than six times larger (56.3%).

5.3. Local background.

When the influence of local background was controlled for, the relation between school marks (in primary education) and the scores at the finals remained very much the same: the better marks, the better scores, except for the case of finalists who did no more than sufficiently well in at least one subject (see table I-7 B).

This relation was most pronounced among rural youth: those who had only very good marks scored five times better than those who had more good than very good marks, and they did twice as well as those who did only sufficiently well in one or more subjects. Among the finalists who lived in a capital those with only very good marks did only one and a half times better than the latter two categories of finalists. Those who had more very good marks than good ones for all subjects scored even slightly better.

Irrespective of their school marks, children from capitals

had a better chance of scoring high than low at the finals. Rural youth, in contrast, had more chance of scoring low than high, even when they had only very good marks in all subjects.

Finalists from capitals who had only very good marks scored almost twice as well as such finalists from other towns and they scored three times better than such finalists from the country. The differences in scores at the finals between youth of various local background were especially large among the finalists who had more good than very good marks. Such finalists from capitals scored four times better than those from other towns and twelve times better than such finalists from the country.

With decreasing level of urbanisation it was indispensable to have very good marks at school in order to improve one's chances of success at the competitions.

5.4. Socio-occupational background.

When socio-occupational background was held constant the general relationship between school marks and scores at the finals remained the same (see tables I-7 C and I-8 C). It was the most pronounced among the children of farmers and teachers. Among the latter those who did only sufficiently well in one or more subjects even obtained the best scores at the finals. Another aspect in which the children of teachers differed from the other finalists was the large proportion among them of pupils who had only very good marks (42% for all subjects, versus 26-30% among the other finalists and 73% for the subjects related to that of the contest, versus 50-63%).

Children of employees among the finalists had the best marks in primary school, scored the best at the finals, and had the best marks in secondary education. In secondary school 50.6% of them had only very good marks; much more than among the children of manual workers (40.9%) and farmers (31.0%). The proportion of the finalists who had less good or very good marks than sufficient or even insufficient ones in secondary education was among the children of employees much smaller than among workers' and farmers' children (7.1% versus 11.4 and 15.5%).

Within each of the socio-occupational categories finalists had much better marks in secondary education than their class mates. The number of pupils who had only very good marks was

among the children of employees almost four times larger among finalists (50.6%) than among the others (14.5%); among workers' children it was almost six times larger (40.9% versus 7.2%), and among farmers' children five times (31.0% versus 6.2%).

5.5. Conclusions.

The information on school marks in secondary education indicated that finalists of the competitions in school subjects obtained much better marks than their class-mates, especially those who did not participate in the contests. The difference in marks in secondary education between finalists and other pupils was particularly large among children from a less favourable socio-occupational background.

The competitions were a fruitful training for the further school career, especially for pupils from less privileged social groups. The very process of preparation for the contest might be helpful in the development of learning techniques and it certainly led to mastery of knowledge that was of use in further learning. The competitions might stimulate self-confidence in expressing oneself in speech and writing.

Pupils from a less favourable socio-occupational background who succeeded in reaching the finals may have been more able to achieve school success than finalists from privileged social groups.

The findings indicate that it makes sense to concentrate learning in one field and to have a sufficient interest in the other subjects at school, instead of trying to do one's very best in all subjects. Only one out of three finalists succeeded in doing very well in all disciplines.

The competitions in school subjects give pupils who at school have good marks only for the subject of the competition an opportunity of heightening their prestige among teachers, class-mates, and out of school.

6. Abilities.

Manifestations of the finalists' abilities were illustrated by the organizers of the contests by statements like:

"Outstanding abilities of the winners of the competition appeared in the maturity of their perception of literary work, personal judgements and conclusions, appreciation of the beauty of literature and art, and high competence in transmitting personal thoughts and feelings" (G.J.).

"The winners of the competitions were characterized by a developed creative imagination, ease of expression, and thorough knowledge of the theory of literature and of linguistic problems" (R.A.).

"The winners of the competitions could think more critically than other pupils, solved problems in an original way, concisely, quickly. They were inquiring, thought abstractly" (L.O.).

"Their works show individuality and clarity in the solving of complex mathematical problems" (K.R.).

The finalists were characterized by easy acquirement of knowledge, the capability to work individually, originality and ingeniousness, high efficiency in thinking, and a great skill in solving complex problems. Only a few organizers stressed an excellent memory as the most typical trait of the winners.

In the opinion of the organizers the finalists' abilities manifested themselves in high competence in applying their knowledge in solving new problems and in the unconventional character of their solutions.

6.1. The finalists' abilities in the eyes of their teachers.

The teachers of the finalists were asked how able these pupils were in comparison to the other pupils they knew (see table III-12).

Only 4.5% of the finalists was described by their promotor as the most able pupil they had ever known; in 41.7% of the cases this teacher knew but a few more talented pupils, and 50.0% of the finalists was not reckoned to the most able: their teachers knew many more talented pupils.

6.1.1. Scores at the finals.

Finalists who scored high were more often indicated as the most talented (7.3%) and among those who scored low there were less whose promotor did not know more able pupils (2.3%). The more pupils their promotor knew who were more talented, the less their chances of success.

Finalists who were indicated as the most able pupil scored

more than four times better than those whose promotor said to know many pupils who were more talented.

6.1.2. Opinions of the teachers in secondary education.

The proportion of finalists who were described as the most able their teacher had ever known was much smaller in the opinion of their teachers in secondary school than in that of their promotors (0.9% versus 4.5% or, when adjusted for missing cases, 1.3% versus 4.6%). The category of finalists whose teacher knew a few more talented pupils was also much smaller in the case of their teachers in secondary school than in that of their primary school teachers.

The fact that the opinions on the finalists obtained from their teachers in primary school were more positive than those given by their teachers in secondary education may be explained by the selection for admission to secondary education. The schools where the finalists continued education usually selected their pupils with regard to ability and social background. By consequence, the chance that the teacher in secondary education came to know more talented pupils was much larger than that chance among primary school teachers.

There were too few finalists indicated by their teacher in secondary school as the most able they had ever known, to draw conclusions about the chances of success at the finals. The finalists whose teacher in secondary school knew but a few more able pupils scored six times better than those whose teacher knew many more talented pupils. The difference in scores between these two categories of finalists was much larger than that in the case of the opinions of primary school teachers (where the former scored twice as well).

It is possible that the opinions of the teachers in secondary education were biased, because they usually knew how their pupil scored at the final.

6.1.3. Socio-occupational background.

When socio-occupational background was held constant the relationship between the number of more able pupils known to the finalists' promotor and the scores at the finals remained the same (see table III-12 C).

The promotors of workers' children were less positive in

their opinion on the finalists' abilities than the promoters of the other finalists.

6.2. The kind of creative ability.

In the opinion of their teachers the majority of the finalists had creative abilities (see table III-13). When the percentages were adjusted for missing cases, it followed from the promoters' answers that 78% of the finalists had such abilities.

The teachers in secondary education often did not answer this question (32% missing cases). Among the finalists on whom opinions from their teacher in secondary school were obtained 55% were said to have creative abilities.

Whether in the opinion of their teacher in primary or in secondary school, the finalists who were said to have creative abilities often showed these in more than one respect. Promoters mentioned in the average 1.6 types of creative ability and teachers in secondary education mentioned 1.3 out of the three kinds that could be distinguished, i.e. humanities, science, and art or sport.

6.2.1. Scores at the finals.

The proportion of finalists whose promotor said they had creative abilities was larger among the pupils who scored high than among the low scorers. The former did about twice as well as finalists who were said not to have creative abilities.

6.2.2. Socio-occupational background.

The proportion of finalists with creative abilities in the field of humanities and social activity was the largest among the children of teachers and farmers (40%); it was slightly lower among children of other employees (36%), and it was much lower (27%) among workers' children (see table III-13 C).

Creative abilities in science were more extended among the children of employees and manual workers (42%) than among the children of farmers (25%).

Creative abilities in art or sport were somewhat more frequent among the children of teachers (50%) than among other finalists (41-45%).

The proportion of finalists who did not show any creative ability was the lowest among children of teachers and other employees (20%); it was higher among workers' children (23%), and the highest among the children of farmers (29%).

In each category of socio-occupational background, the pupils who did not show creative ability had the least chance of success at the finals. Finalists with creative abilities in humanities or science obtained the best scores.

Children of employees with abilities in science scored somewhat better than those with abilities in humanities. Among the children of manual workers and farmers ability in humanities might be more favourable than in science.

6.2.3. Subject of the competition.

As could be expected, finalists with abilities related to the field of the competition (i.e. humanities and science) did better than finalists with abilities in art or sport. Therefore, the analysis of the relation between the presence of creative abilities and the scores at the finals has been made for the competitions in Polish language and in mathematics separately (see table III-13 B).

Among the pupils at the finals in Polish language 17.3% did not show creative ability according to their promotor. Those who were said to be creative had their abilities in the average in 1.7 category. Of the three types of creative ability that could be distinguished, those in art and sport were mentioned most, even slightly more than abilities in the field of humanities and social activity, i.e. related to the subject of the contest. One out of five finalists in Polish language was said to be able in science.

The proportion of finalists in Polish language who were said to have creative abilities was about the same among those who scored high as among the low scorers. The average number of kinds of abilities was 1.8 among those who scored high and 1.5 among the low scorers. It follows that finalists who scored high had a broader range of abilities than those who scored low.

The chances of success at the finals in Polish language were the best among pupils with creative abilities in science. These pupils scored twice as well as those able in humanities, and two and a half times better than those without creative

ability or with abilities in the fields of art or sport.

The opinions of teachers in secondary education on the abilities of the finalists in Polish language were quite different from those of the promoters. In the opinion of the former a much larger proportion of finalists had no creative abilities (46% adjusted for the significant fraction of 27.5% missing cases). Pupils who in the opinion of their teacher in secondary school were talented in humanities had the best chances of success at the finals; much better than those who were said to be able in the field of science.

Among the finalists of the contests in mathematics 24.5% did not show creative ability according to their promotor. Those who were said to be talented would be so on the average in 1,5 category. Abilities in the field of science were mentioned almost twice as often as creativity in art or sport and three times more than abilities in humanities or social activity.

The proportion of the finalists in mathematics who in the opinion of their promotor did not show creative ability was much larger among those who scored low (30%) than among the high scorers (17%). The average number of categories of abilities was somewhat larger among the high scorers (1.7) than among those who scored low (1.6).

The chances of success at the finals in mathematics were the best for pupils with creative abilities in the field of humanities. These finalists did somewhat better than those with abilities in science, they did half as well again as those with abilities in art or sport, and almost three times better than those who in the opinion of their promotor did not show any creative ability.

One teacher out of five in secondary education gave no opinion on the abilities of the finalists in mathematics. About one third of the finalists on whom an opinion was given was said to show no creative ability. The proportion of the latter was especially high among the finalists who scored low (46% versus 32% among the high scorers). Abilities in the field of science were mentioned more than twice as often as creativity in the fields of art or sport, and more than six times as frequently as abilities in humanities.

A comparison of the finalists at the competitions in Polish language with those at the contests in mathematics, based

on the information obtained from their teacher-promotors, showed that among the latter there were less pupils who showed creative ability. Moreover, the finalists in Polish language had a wider range of abilities than those in mathematics. Ability of more than one kind was more extended among finalists who obtained high scores than among the low scorers, especially at the contests in Polish language.

The majority of the finalists in Polish language showed ability in humanities and social activity (56.2%) and at the finals in mathematics the majority of the participants showed ability in science (59.4%). One finalist out of five at the contests in Polish language was talented in science as well. A similar section of the finalists in mathematics showed ability in humanities. The proportion of finalists who showed ability in the fields of art or sport was almost twice as large at the contests in Polish language (58.7%) as in mathematics (33.6%).

At the competitions in Polish finalists with abilities in science had the best scores; similarly at the contests in mathematics those with competence in humanities and social activity. Pupils with abilities in the fields of humanities or science scored much better than those with talent in art or sport. Especially at the competitions in mathematics, finalists who did not show any creative ability had the least chance of success.

6.3. Differences in the opinions of promotors and teachers in secondary school.

The opinions of the teachers in secondary education on the abilities of the finalists differed markedly from those given by the teacher-promotors.

An explanation for the fact that teachers in secondary education less often stated that finalists showed creative abilities, and that these teachers were less prepared to give their opinion on the abilities of the finalists, might be that they had less opportunity of observing the pupils than the teacher-promotors. The latter usually had known the finalists for several years, a period long enough to detect abilities. For teachers in secondary school it was less than a year ago that they first met them. For the teacher-promotor the finalist was

often one of the most able pupils he knew and therefore tended to draw his attention, whereas teachers in secondary education rarely described the finalists as the most able they had ever known.

Another explanation might be a different interpretation of the notion 'creative ability'. Whereas the large majority of teachers in secondary education had completed university, only one out of three promoters was a university graduate. Possibly, the standards of perfection to be met for a pupil's work to be qualified as a testimony of creativity were more critical, the higher the judge's level of education.

It has already been noted that the teacher promoters were asked to give their opinion on the abilities of the finalists before the finals. The teachers in secondary education were investigated after the finals, when the scores were known. This might explain some of the differences in the opinions on the finalists' abilities between teacher-promoters and teachers in secondary education, because the opinions of the latter could be influenced by the judges at the contests. This could lead to a neglect of the abilities of those who scored low, and a sharper contrast between the opinions on high and low scorers.

It might also be an explanation for the finding that at the contests in Polish language those who were indicated as talented in science by their promotor scored far better than those talented in humanities, whereas the opinions of the teachers in secondary education indicated that the chances of those with creative ability in humanities were the best.

Such biases in the opinions of teachers in secondary school would be in line with the results of experiments by Rosenthal & Jacobson (1968). These authors gave teachers false information about the abilities of their pupils: the more able were said to be of average ability and pupils of average ability were said to be gifted. After a few months of teaching the distribution not only of marks, but test results as well, were found to fit with the suggestion.

This would imply that the opinions of others, particularly persons acknowledged to be experts, may have a substantial impact on the opinion of a teacher, as well as on the progress in learning and the development of the pupil's abilities. It must be asked whether participation in the competitions may not

have a negative influence on the situation of a pupil who did not succeed in obtaining a high score. Further research would be needed to answer this problem.

7. Temperament.

The opinions of the promoters (see table III-15) showed that the finalists were predominantly level-headed persons (65.2%), self-possessed (37.8%). Rather few finalists were described as: phlegmatic (5.9%), unbalanced (5.2%), impetuous (4.4%) or aggressive (1.0%).

7.1. Scores at the finals.

The scores at the finals did not differ much between pupils of different temperament. The few finalists who were indicated as unbalanced, impetuous, or aggressive scored twice as well as the others.

7.2. Opinions of the teachers in secondary education.

Almost one out of three teachers in secondary education did not answer the question on the finalists' temperament (30.7%). The opinions that were given were similar to those of the teachers in primary education. The finalists' temperament was thus one of the few traits that were similarly evaluated by teachers in both school types.

7.3. Socio-occupational background.

The distribution of the various kinds of temperament among all finalists was very similar to that within each of the four categories of socio-occupational background. The proportion of level-headed finalists was somewhat larger among the children of farmers than among the others. Among the children of manual workers were relatively more self-possessed pupils, whereas a phlegmatic or unbalanced temperament was somewhat more frequent among the children of employees.

8. Defects of character.

Most finalists were characterized as persons who wanted to be somebody, continuously striving for something, always on their way, who endeavoured in ever new enterprises (see table III-17). Their typical trait was diligence. It has already been mentioned that they prepared for the finals with different intensity, but that there were only a few who did not prepare at all (see section 4).

In the opinions of the teacher promoters finalists tended to be seen as pupils without defects of character (90%, adjusted for missing cases). The most frequently mentioned defects were: egoism (2.2%), lack of conscientiousness (1.6%), shyness and resourcelessness (1.2%), and a low standard of culture (1.0%).

8.1. Scores at the finals.

After adjustment for missing cases, the proportion of pupils who did not show defects of character only slightly differed between high scorers (90%) and those who scored low (87%). A low standard of culture and egoism were mentioned more as defects of those who scored high than of the low scorers, whereas the other defects were more frequent among those who scored low. However, the number of such cases was too small to draw reliable conclusions.

8.2. Opinions of the teachers in secondary education.

The teachers in secondary education often did not express their opinion on the finalists' defects of character (31.2%).

A large majority of the teachers who answered the question (86%) said the finalists did not show defects of character. The proportion of finalists who were said to have some defect was larger for the subsequent specified categories than those in the opinions of the promoters, but the proportion of finalists who by the teacher in secondary education were said to have 'other defects of character' was smaller.

Teachers in secondary education mentioned resourcelessness and shyness (4.2%, adjusted for missing cases), a low level of culture (2.6%), and a lack of conscientiousness (3.5%) more than

twice as frequently as the teacher-promoters. These defects of character were primarily mentioned as being traits of pupils who scored high at the finals.

8.3. Discussion.

A full comparison of the opinions of teacher promoters and of teachers in secondary education could not be made: the number of cases was too small to draw reliable conclusions.

Nevertheless it may be assumed that the finalists showed more defects of character in secondary education than in primary school. This might be a result of difficulties with the adaptation to the conditions in secondary education, especially among pupils who did very well in primary school. Whereas the opinion of the promotor was given when the finalist was in the eight grade, when everybody and everything was known to him, the opinion of the teacher in secondary school referred to the situation after some months of learning in that new environment. During that period of adaptation the finalists were faced with the problem of accepting a less privileged position in the class than in primary school. This situation was the more frustrating for the most able pupils, those who scored high at the finals, because they had to loose more prestige than those who scored low. In secondary education the finalists had to struggle for their position. For some of them this was a very difficult process which made them confused and shy.

8.3.1. Letters from finalists: changes in life.

This assumption was supported by the letters obtained from the finalists. They wrote that they had many problems with the other teaching methods and the adjustment to more independent ways to acquire knowledge than in primary school. Some finalists had not yet mastered the art of making notes or got lost in the text of the lectures. Many found it very hard to accept lower marks. In contrast to the teachers in primary school, those in secondary education were reluctant to give high marks and rarely gave very positive marks.

The letters from the finalists also indicated that, besides the problem of adaptation to school, there was the problem of a changed attitude in the family. Parents who were accustomed to

high attainments of their child at school had difficulty in accepting the lower marks in secondary education. This caused many misunderstandings and even tragic conflicts resulting in a mental breakdown, resignation of further learning or of attempts to gain a place in secondary school, discouragement, etc. Nevertheless, after the troublesome period of adaptation most finalists found a satisfactory position among their new classmates.

9. Physical condition.

The large majority of the finalists were reckoned to be pupils of a very good physical condition: they were rarely ill and not eager to take leave from school when they felt sick. They distinguished themselves being tall with good bearing. One fifth had a reputation for achievements in sport.

In the opinion of their promotor 90% of the finalists showed no physical defects (see table III-18). The few defects that were signalized were: a very short stature (1.9%), sickness (1.6%), corpulence (1.3%), defects of eyesight (1.2%) or speech (1.0%), and cripplehood (1.0%).

9.1. Scores at the finals.

Among the finalists who scored high were slightly more with physical defects than among those who scored low.

9.2. Opinions of the teachers in secondary education.

About one out of three teachers in secondary education gave no answer to the question on the physical health of the finalists (31.1%). 95% of the finalists on whom an opinion was obtained were said to have no physical defects, somewhat more than in the opinions of the teacher promoters. This proportion was about the same among high and low scorers (95% versus 96%).

9.3. Discussion.

When this information about the finalists is compared with findings of other authors (Ignar-Golimowska 1982; Pułtorak 1982;

Bejnarowicz & Zakrzewska 1974; Łuczak 1985) it can be seen that finalists showed less physical defects than average pupils of their age. There were especially few among them with defects of eyesight, a very short stature, or corpulence.

This finding accords with the statement of authors like Hewitt & Stewart (1962), Charzewski (1981), and Bielicki et al. (1982) that persons who distinguish themselves negatively under given bio-geographical and socio-economical conditions (Wolański 1974) have less opportunity for upward social mobility than those who distinguish themselves positively.

Some authors (e.g. Spionek 1975; Popielarska 1982) found a tendency towards an increase in health complaints among pupils in secondary school as compared to those in primary school. Spionek explained this by referring to the process of adaptation to the new school, the different demands of their teachers, the need to meet the expectations of their parents, and problems of adolescence. These findings were not confirmed by the present investigation: teachers in secondary education mentioned fewer physical defects than the promoters.

Health complaints might have different effects on the progress of learning. On the one hand there are authors who report negative effects (Spionek 1975; Wojcik 1978; Radiukiewicz 1980) and on the other hand there is evidence of increased attainments at school (Łuczak 1985: 33). It is quite possible that both tendencies were relevant for the chances of success at the contests. Pupils with physical defects were less represented among the finalists than among average pupils. This would be an indication of diminished chances for the physically handicapped of reaching the finals. Among the finalists who scored high, however, there were slightly more with physical defects than among those who scored low.

Under some circumstances physical defects may be an impetus for compensatory activity, especially of an intellectual kind. By means of high achievements in education, such pupils may improve their position among their peers. This is certainly a difficult task: social groups usually hesitate to acknowledge attainments of persons who distinguish themselves in a negative way. Probably only the most persevering persons of high intellectual ability succeed.

10. Summary.

The finalists distinguished themselves among class-mates with regard to many traits that testified their proficiency and intellectual and other potential.

Many more distinguished themselves in these respects in the opinion of their teachers in primary education than in that of their teachers in secondary school. The latter noted larger differences on these traits between finalists who scored high and those who scored low than the teachers in primary education.

Finalists of the competitions distinguished themselves most among their class-mates in primary school by their diligence and perseverance, correctness and ease of expression in speech and in writing, competence in problem-solving, and a great knowledge of the subject of the competition. Social skill was mentioned less as a distinctive trait of finalists. In the opinion of the teacher-promoters, between $\frac{1}{3}$ and $\frac{1}{4}$ of the finalists showed such distinctive traits. The proportion of those distinguishing themselves in these subsequent respects in the opinion of their teachers in secondary education was up to three times smaller.

Diligence and intellectual characteristics were mentioned more as distinctive traits of high scorers than of low scorers. Traits of social behaviour were mentioned somewhat more as distinctive for finalists who got low scores.

Finalists typically had high marks at school, especially for subjects related to that of the competition. In secondary education they obtained somewhat less very good marks, but in comparison with class-mates who did not participate in the contests they had clearly superior marks. Pupils who scored high at the finals had better marks than those who got low scores. This relationship was found with regard to the marks in primary school and in secondary education as well.

In the opinion of the promoters 4.5% of the finalists were the most able pupil they had ever known. Almost one half of the finalists were said to be one of the few most gifted pupils. Almost 80% of the finalists had creative abilities. Among those who scored high there were three times more whose promoters said they were the most able they had ever known than among the low scorers. High scorers were also more denoted as showing creative ability.

In the opinion of their teachers in secondary education only a few finalists were the most able they had ever known. These teachers also denoted less finalists as one of the few most able pupils. Moreover, teachers in secondary education reported less creative abilities among the finalists. Their opinions on finalists who scored high were much more favourable than on those who scored low.

Differences between the opinions of the teacher-promoters and the teachers in secondary education may be explained by the selection for secondary education with regard to ability and social background. Therefore, teachers in secondary school had more chance of knowing pupils who were more able than the finalists.

The finding that the opinions of the teachers in secondary education on the abilities of the high scorers differed more from the opinions on the low scorers than was the case with the opinions of the teachers in primary education, might be an indication of a bias. In contrast to the promoters, teachers in secondary education knew the scores of the pupils at the finals of the competitions at the time of the investigation.

Both by their teachers in primary and in secondary school, most finalists were described as level-headed or self-possessed. Only a few were said to be phlegmatic, unbalanced, impetuous, or to have defects of character or physical condition.

XIV. CHARACTERISTICS OF THE TEACHER-PROMOTOR.

The effectiveness of teaching depends on the teacher's pedagogical talent and feeling for the pupils (Dawid 1912). Besides such personal traits, sociologists of education stress such characteristics as the teacher's formal education, work experience, and the situation at home as important determinants of the effectiveness of pedagogical work.

Various characteristics of the teacher-promotor that are expected to be relevant for the effectiveness of their efforts will be presented in this chapter. If possible, the data on the teacher-promoters will be compared with information on all teachers in Polish primary education. A comparison will be made of various characteristics of the teacher-promoters of high and low scorers among the finalists, and of teacher-promoters from urban and rural schools.

The questionnaire including information about the teacher-promotor was returned in 24% of the cases. A comparison with the main sample showed that in this subsample the teachers of high scorers were markedly over represented, whereas the proportion of finalists who scored low was about the same in this sample as in the main group. It followed that the success ratio in this sample was higher: the finalists whose teachers returned the questionnaire did half as well again as all finalists together.

When in this chapter an analysis is made with regard to local background this will not be the same as in the preceding chapters. The information on the teachers is specified according to the locality of the school, whereas the information on the finalists has been analysed with regard to their place of residence.

The proportion of rural youth among the finalists was 27%. That of teachers from rural schools in the sample was 37%. Among the finalists 14% lived in Warsaw, but among those whose teachers returned the questionnaire, 11% attended a school in Warsaw. The latter scored more than four times better than the former, which indicated that the over representation of teachers of high scorers was mainly to be sought among those from Warsaw schools.

1. Formal education.

The investigation was done at a time when the Ministry of Education stressed the importance of university education for teachers. A multitude of opportunities were given to teachers to supplement their education in part-time university courses. Older teachers could take specially organized examinations to qualify for their function. These measures were intended to form an appropriately qualified staff for the 'ten-year school' that was to be introduced.

The teachers eagerly undertook academic studies, but after graduation they left their profession en masse, to take on much better paid positions in industry and other institutions. In spite of this loss of teaching staff, the educational level of the Polish teachers improved during the 1970s. The proportion of university graduates among teachers in primary education was in 1973 only 8.6%. At the time of the research - in 1977 - it was already 25.9%, i.e. three times as large. During that period the proportion of teachers with secondary education decreased from 23.8% to 16.3%, and that of teachers with non-academic tertiary education decreased from 66.5% to 57.8%.

A comparison of these data with the teacher-promoters' answers showed that the promoters of the finalists had a higher level of formal education than other teachers in Polish primary schools. There were especially few promoters with secondary education: the proportion of such teachers in the sample was only one eighth of that among all teachers. Among the teachers in the sample 28.2% were graduates; 67.2% completed non-academic tertiary education; only 1.9% completed secondary education, and there were 2.6% missing cases (see table V-14).

Both among the university graduates and among the teachers with non-academic tertiary education the large majority specialized in the subject of the competition.

1.1. The pupils' scores at the finals.

Finalists whose promotor graduated in the subject of the competition had the best chance of scoring high rather than low. They scored half as well again as those whose promotor completed non-academic tertiary education in that subject.

Finalists whose promotor completed non-academic tertiary education in another subject than that of the competition got very good scores as well. They scored almost half as well again as finalists whose promotor had the same educational level and specialized in the subject of the contest. This finding might be incidental, due to a rather small number of cases. Perhaps these promoters had the subject of the contest as a hobby or they were specialized and well trained in pedagogy.

1.2. Locality of the school.

Promoters from urban schools, especially from schools in capitals, had a higher level of formal education than teachers from rural schools. The proportion of university graduates among the promoters working in a capital was 34%, in other towns it was 28%, and among those from rural schools 24% (see table V-14 B).

Pupils of university graduates had better scores at the finals than pupils of other teachers. Among the finalists who attended a school in a capital there was no difference in the scores of both groups, however. Among the finalists who attended a school in another town those with a graduate as promotor did almost half as well again as those whose promotor completed non-academic tertiary education. Among the pupils who attended a rural school those with a graduate as promotor scored more than one and a half times better than the others.

1.3. Conclusions.

It follows that the teacher-promotor's formal education is an important factor. The higher the promotor's educational level, the better the finalist's chances of scoring high rather than low. This positive relationship between the promotor's level of education and the pupil's scores at the finals is stronger, the less urbanized the locality of the school.

2. Age and years of work experience.

It was expected that the length of a promotor's work experience would be relevant for the pupil's chances of success

at the competitions. Similarly, a higher age of the promotor might be favourable, because such a teacher might make use of personal experiences.

2.1. Work experience.

In 1973 the median length of pedagogical experience of Polish teachers was 9.9 years: 27% had up to 5 years of such experience, 24% had 6 to 10 years experience, 17% had 11 to 15 years done such work, and 31% more than 15 years.

The teacher-promotors had longer done pedagogical work than average teachers (see table V-15). There were especially few among them with up to 5 years of experience (4.4%, i.e. only one sixth of the average proportion) and relatively many with more than 15 years (57.3%, i.e. almost twice as many as the average proportion).

2.1.1. The pupils' scores at the finals.

There was a positive relationship between the length of the promotor's work experience and the pupil's chances of success at the finals. Finalists whose promotor had more than 15 years of pedagogical experience scored half as well again as pupils of teachers with up to 5 years of such experience.

2.1.2. Locality of the school.

The proportion of promotors with up to 10 years of work experience was larger among teachers from rural schools (25%), than from urban schools (18% - see table V-15 B).

When the location of the school was held constant, the relationship between the length of the promotor's experience and the pupil's chances of success at the finals appeared to be irregular. The finding that finalists who attended a school in a capital and whose promotor had 6 - 10 years of work experience scored very well was particularly hard to explain. Perhaps this finding was incidental and due to the small number of cases. When the two lowest categories of work experience were combined the scores of pupils who attended a school in a capital and whose teacher had up to 10 years of experience did not differ much from the scores of finalists whose teacher had a longer experience (SR=74).

The pupils of promoters from other towns with more than 15 years experience scored half as well again as when the promotor had a shorter work experience.

Pupils from rural schools had the best chances of success at the finals when their promotor had more than 10 years of experience. Their scores were almost half as well again as when the promotor had up to 10 years of work experience.

2.2. Age.

The median age of the teachers in Polish primary education was 34.1 years in 1977. Almost 7% were up to 25 years of age, 26% between 26 and 30 years, 21% between 31 and 35, 42% between 36 and 50, 4% between 51 and 60, and less than 1% were aged 61 years and over.

The promoters were older than average teachers (see table V-16). Their median age was 38.2 years. There were relatively few among them who were up to 25 years of age (1.8%) or between 26 and 30 (18%).

2.2.1. The pupils' scores at the finals.

Pupils whose promotor was aged between 36 and 50 years had the best chances of scoring high rather than low at the finals. Finalists whose promotor was 31 - 35 years of age got relatively good scores as well. Both groups of finalists scored half as well again as pupils whose promotor was younger than 31 or older than 50.

2.2.2. Locality of the school.

With increasing urbanization of the school's locality, the proportion of teachers aged between 31 and 50 increased and that of younger teachers decreased (see table V-16 B). The latter proportion was among promoters from rural schools half as high again as among those from schools in a capital.

The chance of their pupils scoring high rather than low at the finals was among the promoters from a school in a capital the best when they were between 26 and 30 years of age (perhaps also when they were over 50). This finding was contrary to the general relationship. Among the promoters from other schools the

pupils of the rather young teachers scored lower than pupils of those who were 36 - 50 years of age.

2.3. Conclusions.

A longer pedagogical experience of the teacher-promotor was favourable for the chances of success at the finals, except for pupils attending a school in a capital. The chances of the latter might rather be determined by other factors.

The promotor's age was found to be related to their pupil's chances of success at the finals, although this relationship was quite different among teachers from schools in capitals, where younger promotors had better results, than among promotors from other schools, where the best results were obtained by those in the age range between 36 and 50 years. This indicated that in less urbanized places life experience of a teacher was a favourable circumstance for the pupils' chances of success.

An explanation of the finding that teacher-promotors in the age range from about 30 to 50 years had good results (except among those from schools in capitals) might be that they valued creativity, spontaneity, and originality of their pupils higher than younger or older teachers (Albinski 1959). These traits were found to be typical for finalists, particularly the high scorers.

3. Situation at home.

It is assumed that the effectiveness of a promotor's work increases with improved circumstances at home. In other words: a pupil's chances of success depend on the promotor's marital position, the number of persons in his household, and housing conditions (here: the availability of a separate room to study).

3.1. Marital position.

Unmarried teachers probably had more time to work with their pupils than married teachers. Thus, pupils of unmarried teachers would have more chances of success at the finals.

The large majority of the teacher-promotors were married (81%). Among the 17% unmarried promotors 12% had never been

married, 3% were divorced, and 2% widowed (see table V-17). The proportion of unmarried persons was among the women twice as large as among the male teachers (19% versus 10%).

The large majority of the promoters (85%) were women. This proportion was somewhat larger than the proportion of women in the whole teaching staff of Polish primary education (81%).

3.1.1. The pupils' scores at the finals.

The hypothesis that pupils of unmarried teachers would score better at the finals than pupils of married teachers was not confirmed by the findings. Contrary to this hypothesis, the pupils of married teachers scored almost half as well again as those of unmarried teachers.

3.1.2. Locality of the school.

When the promoters were distinguished according to the place where the school was based, the proportion of female teachers was found the same in each category of locality (see table V-17 B). Relatively more women who taught in a capital were married.

Within each category of locality of the school, pupils with a female promotor scored about as well as those with a male one. Among the finalists who attended a school in a capital, those with an unmarried promotor scored slightly better than pupils whose promotor was married. Among the finalists who attended a school in another place, the scores of the latter were one and a half times better than the scores of those with an unmarried teacher-promotor.

3.2. Size of the household.

It was expected in this research project that the chances of success at the finals would increase with the decreasing size of the promotor's household. A small family, a household of one or two persons, would imply a smaller burden for the teacher after school.

The modal household of the teacher-promoters had four members (37%). Almost one promotor out of four (23%) lived in a larger household; 22% in a household of three persons; 10% in a

household of two persons, and 6% of the teacher-promoters lived alone (see table V-18).

3.2.1. The pupils' scores at the finals.

The hypothesis of a negative relation between the size of the promoters' household and the pupils' scores at the finals was not supported by the findings. The best scores were obtained by pupils of promoters in households of three or five persons. Finalists whose promotor lived alone did less than half as well.

3.2.2. Locality of the school.

Among the teacher-promoters from schools in capitals, a smaller porportion lived in a small household (of one or two persons). Among the promoters from rural schools, there were rather many who lived in households of five or more persons (see table V-18 B).

Among the finalists who attended a rural school, those whose promotor lived in a fairly small household, but not alone, scored somewhat better than the others. Thus, this case provided some support for the hypothesis of a negative relation between the size of the household and success.

Among the finalists who attended an urban school, however, a clear positive relation between the size of their promotor's household and the scores at the finals was found: pupils whose promotor lived in a household of five or more persons scored much better at the finals than those whose promotor lived alone or in a small household. Among the finalists who attended a school in a capital, those whose promotor lived in a large household scored half as well again as pupils whose promotor lived alone or in a household of two persons. Among the finalists who attended a school in another town, the former group scored two and a half times better than the latter.

3.3. The availability of a separate room to study.

It was expected that promoters who had a separate room to study could work more effectively than teachers who lacked such facility at home. Therefore it was assumed that pupils of promoters with a separate room to study at home would score better than other finalists.

Half of the teacher-promoters (51%) had a separate room to study at home (see table V-19). This was somewhat less than the proportion of finalists who had such a facility (see 11.6).

3.3.1. The pupils' scores at the finals.

Contrary to the expectation, pupils of promoters who had a separate room to study at home scored somewhat lower than the finalists whose promotor lacked such facility.

3.3.2. Locality of the school.

Further analysis of the data, controlling for the influence of the locality of the school, showed that the proportion of the promoters with an own study at home decreased with increasing urbanization (see table V-19 B).

The hypothesis that the availability of a study at the promoters' home would be positively related to the finalists' chances of success was only confirmed for teachers at schools in a capital, where pupils of teachers with a study scored half as well again as finalists whose teacher lacked that facility. Among the finalists who attended school in other towns or in the countryside, the former scored slightly lower than those whose promotor lacked a separate room to study at home.

A comparison of the availability of a separate room to study among teacher-promoters and finalists showed that urban finalists were in a better position than their promoters. Among the rural finalists, there was a smaller proportion with an own study at home than among the promoters from rural schools. The difference was larger among the low scorers than among those who scored high (compare tables I-15 B and V-19 B).

3.4. Discussion.

The fact that pupils of married promoters scored better than those of unmarried ones, except among the finalists who attended a school in a capital, might be due to a lower age and a shorter work experience of the unmarried teachers, of whom the majority had never been married. The promotor's age and work experience were found positively related to the scores at the finals, with the same exception: the promoters from schools in capitals.

Possibly, single teachers spent a lot of time seeking a partner, rather than using it for work with pupils, as was assumed. Feelings of confidence, psychic stability, or emotional security, which a partner may give, might also play an important role in the effectiveness of a teacher's work. Single teachers might have difficulty to meet such basic needs, and this might hamper them in their work.

When it is assumed that promoters who live in a household of five or more persons have children of their own, it may be concluded that experience with the education of their own children is important for the effectiveness of their work at school. This experience might be more relevant for teachers in towns than for those in rural schools. An explanation could be that there are more facilities in the field of domestic service and the care for children in town than in the countryside. Teachers in rural schools who have several children might have to spend more time in the household and in the care for their children than teachers in urban schools, and therefore have less time and energy for their work at school.

The relevance of an own study at the promotor's home might largely depend on the presence of other facilities, such as heating, in that room. A separate room in a house in the country was often not heated in winter, hence could not be used during the whole year. In Polish capitals most houses had central heating. A separate room could there be heated during the whole year.

Further research would be needed to test these hypotheses.

4. Study contacts.

It is to be expected that teachers who have frequent study contacts with other teachers, especially those in schools of higher educational level, on meetings and courses obtain better results in their work. Pupils of promoters who often have such contacts might have better chances of success at the finals.

4.1. Contacts with other teachers.

The teacher-promoters were asked how often they contacted other teachers, in order to deepen their pedagogical knowledge.

A majority of the promoters had frequent study contacts with colleagues in primary education (59%). Only 4% stated not to have such contacts (see table V-9).

Contacts with teachers in lower level secondary education were rare. Only 4% of the promoters said to have frequent contacts with such teachers. One out of three had these from time to time.

Frequent contacts with teachers in higher level secondary education were reported by 12% of the promoters. Moreover, 46% had such contacts sometimes.

The staff of universities and of institutes for teacher training and research on education were the second large groups the promoters contacted with. Frequent contacts were reported by 14% of the promoters in both cases.

4.1.1. The pupils' scores at the finals.

A clear relation between the frequency of contacts with other teachers and the pupils' chances of success at the finals could only be found with regard to contacts with teachers in higher level secondary education. Finalists whose promotor often contacted such teachers scored half as well again as pupils whose promotor did not have such contacts.

4.1.2. Locality of the school.

When a distinction was made according to the locality of the school, the frequency of the contacts with the various groups of teachers occurred to be very much the same in each category of locality (see table V-9 B). Promoters from rural schools had somewhat more contact with teachers in primary education than promoters in capitals. The latter had relatively more contact with the staff of scientific institutes.

Within the subsequent categories of locality of the school, no strong relationship between the frequency of the promoters' contacts with other teachers and the pupils' scores at the finals could be demonstrated.

4.2. The effectiveness of study contacts.

The teacher-promoters were asked which study contacts had been the most fruitful to deepen their knowledge on the subject

of the competition (see table V-10).

The special, part-time academic courses for teachers - the contacts with the staff of the university - were mentioned most frequently (27%). Other important opportunities of acquiring a more profound knowledge of the subject of the contest were:

- participation in groups for private study (26%);
- participation in courses in the subject (22%);
- conferences on teaching methods (18%);
- contacts with colleagues (15%);
- attendance of lessons of other teachers (9%), and
- auditions of NURT, the radio and TV courses for teachers (3%).

Direct study contacts with specialists were thus considered more effective than the indirect transmission of knowledge via the mass media or by teachers with a similar level of knowledge.

4.2.1. The pupils' scores at the finals.

Pupils of promotor who said they had the most profit from conferences, subject courses, or academic courses obtained the best scores at the finals. These finalists scored twice as well as pupils whose promotor said the attendance of lessons of other teachers to have been the most effective, and they scored half as well again as pupils of promotor who mentioned private study groups as the most fruitful study contact.

4.2.2. Locality of the school.

The various categories of answers were given about equally frequently by teachers from urban schools as by those from rural schools (see table V-10 B). The general relationship between the promotor's statements on the effectiveness of study contacts and the pupils' scores at the finals was the same within each category of locality of the school. Among finalists who attended an urban school, this relationship was stronger than among those who attended rural schools.

4.2.3. Discussion.

At the time of the investigation the authorities emphasized the activities of teacher groups for private study, and on the radio and TV courses of NURT. The organization of conferences

and courses in which specialists in the given subject took part was given up in many regions. Such meetings were considered too expensive in comparison to those forms of training for which travel was not needed.

These less expensive forms of supplementary training were less valued by the promoters, and the pupils of those who considered these forms to be the most effective got relatively low scores at the finals.

It must be added, that the various measures to enable hundreds of teachers to complete university education required vast investments. These measures caused a considerable improvement of the participating teachers' professional knowledge. Teachers who had already completed an academic study had less opportunities for effective additional training during that period.

4.3. Conditions for study contacts.

A majority of the teacher-promoters (59%) said to have favourable conditions for study contacts (see table V-12). Those who said they had unfavourable conditions for such contacts mostly mentioned personal circumstances as being the reason (19%). A mixture of personal and external reasons was mentioned by 12% of the teacher-promoters, and unfavourable conditions were attributed the least to circumstances at school (5%).

4.3.1. The pupils' scores at the finals.

There was no relationship between the promotor's conditions for study contacts and eventual causes of these conditions to be unfavourable on the one hand, and the pupil's scores at the finals on the other.

4.3.2. Locality of the school.

Favourable conditions for study contacts were reported somewhat more by promoters from urban schools (61%) than from rural schools (57%). Within none of the categories of locality of the school could a clear relationship be found between the promoters' conditions for study contacts and the pupils' chances of success at the finals.

5. Professional and social activity.

It is to be expected that a teacher's workload - whether at school, in social organizations or in the community - has an influence on the education of able pupils. Some aspects of the promoters' professional and social activities will be discussed here: the length of the working week at school, membership of social organizations, time spent at activities with pupils out of school hours and at volunteer work.

5.1. Working hours in school.

A majority of the teacher-promoters (64%) had a working week of more than 27 hours (see table V-12). This implied that they worked overtime. The normal working week of 26 hours was reported by a much smaller proportion of the promoters (17%). Promoters who worked part-time formed a small minority (15%).

5.1.1. The pupils' scores at the finals.

Finalists whose promotor had a normal working week of 26 hours got slightly better scores than pupils whose promotor worked overtime.

5.1.2. Locality of the school.

The proportion of the promoters who worked overtime was larger among the teachers from rural schools (70%) than among those from urban schools (61%).

A strong relationship between the promoters' working week and their pupils' scores at the finals could not be demonstrated, either among the promoters in capitals, in other towns, or in villages (see table V-12 B).

5.2. Membership of organizations.

Two thirds of the teacher-promoters were member of some organization (31%). No answer to this question was obtained from 8% of the respondents.

Membership of the Polish United Worker's Party (PZPR) was the most frequent (38%). The proportion of promoters who were member of the other political parties was much smaller: 5% were

member of the Peoples' Movement (ZSL) and 1% of the Democratic Movement (SD). Other organizations rather often mentioned by the promoters were the Teachers' Union (15%) and Polish Scouting (7%).

5.2.1. The pupils' scores at the finals.

Pupils whose promotor was a member of a small organization scored very well. The unspecified (non-political) organizations usually were specialized in a subject like the natural sciences, history, or philology. Pupils whose promotor was a member of a political party or of the Teachers' Union scored somewhat lower.

All these groups of finalists scored somewhat better than those whose promotor was not a member of an organization, and more than twice as well as finalists whose promotor was a member of Polish Scouting.

5.2.2. Locality of the school.

Among the promoters from urban schools, a somewhat larger proportion were not a member of an organization (32%) than among those from rural schools (29%). Among the latter there were more members of political parties (48% versus 43%), especially of the United Peoples' Movement (8% versus 3%).

The relationship between the promoters' memberships and the pupils' scores at the finals was similar in each category of locality of the school.

5.3. Activities with pupils outside of school hours.

Almost all teacher-promoters spent some time at activities with pupils outside of school hours. Half of the promoters spent up to two hours a week for these activities; 35% spent between two and five hours, and 9% spent more than five hours weekly (see table V-12a).

5.3.1. The pupils' scores at the finals.

There was a weak negative relationship between the amount of time spent at these activities and the pupils' scores at the finals of the competitions.

5.3.2. Locality of the school.

When the promoters were distinguished with regard to the locality of the school, the time expenditure was found similarly distributed in each category of locality (see table V-12a B).

Finalists who attended a school in a capital and whose promotor spent between 2 and 5 hours at such activities scored half as well again as when the promotor spent up to 2 hours a week. The latter group of finalists did somewhat better among the pupils of schools in other towns or in the country than those whose promotor spent rather a lot of time.

5.4. Volunteer work out of school.

Most teacher-promoters said they did volunteer work out of school. One promotor out of four stated he did not, or did it to a negligible extent (see table V-12b).

The large majority (80%) of those who did volunteer work spent less than 2 hours weekly, and only a few (5%) spent more than 5 hours a week at volunteer work.

5.4.1. The pupils' scores at the finals.

Finalists whose promotor did no or only a negligible amount of volunteer work scored somewhat better than other finalists. Among those whose promotor did volunteer work, the best scores were not obtained when the promotor spent less than 2 hours at it, but when the promotor spent between 2 and 5 hours at this type of work.

5.4.2. Locality of the school.

Promoters from urban schools engaged less in volunteer work than those from rural schools (see table V-12b B). The number of those who did no volunteer work, or who did it to a negligible extent, was among the former 27% and among promoters from rural schools 18%. Volunteer activities of less than 2 hours weekly were done by 46% of the promoters from schools in capitals, 50% of those from schools in other towns, and 58% of the promoters from rural schools.

Whereas among the finalists from urban schools those whose promotor spent up to 2 hours at volunteer work scored somewhat better than those whose promotor did no or only a negligible

amount of volunteer work, among the finalists from rural schools those whose promotor did not or hardly engage in volunteer work got better scores.

5.5. Conclusions.

The findings indicated that a rather large amount of time spent at activities with pupils outside of school hours may have a negative influence on the effects of the education of able pupils.

Volunteer work out of school might hamper a teacher's didactical work when it concerns activities of an economical kind, rather than when it is of cultural character. The former forms of volunteer work (e.g. functions as treasurer of a club, collector of contributions, or help at the harvest) were mentioned more by promoters from rural than from urban schools.

6. Summary.

Relationships were found between various characteristics of the teacher-promotor and the pupils' chances of success at the competitions.

A positive relationship was found between the teacher promoters' formal education and the pupils' chances of success at the competitions.

The promoters were well educated in comparison to other teachers in Polish primary education. This was an indication of improved chances of reaching the finals the higher the level of formal education of the teacher-promotor was.

Pupils whose promotor graduated at a university in the subject of the competition had the best chances of scoring high rather than low at the finals. This relationship was stronger, the lower the urbanization of the locality of the school.

It follows that it is especially important for pupils of rural schools to have well educated teachers.

The length of the promoters' experience in pedagogical work was found positively related to the pupils' scores at the finals, although this relationship was weak for the finalists who attended a school in a capital.

The chance that their pupils scored high rather than low at

the finals was the best among promoters in the age range from about 30 to 50 years. Among younger promoters this chance was smaller, except among those from schools in capitals.

Under the heading 'situation at home' the promoters' gender and marital position, the size of the household, and the availability of a separate room to study have been considered.

Contrary to the hypothesis, it was found that married promoters had a better chance of their pupils scoring high rather than low at the finals than unmarried teachers. There was no difference between female and male promoters with regard to their pupils' scores at the finals.

Some support for the hypothesis of a negative relationship between the size of the promoters' household and the finalists' scores was only found among the promoters from rural schools. Also in this case, however, promoters who lived alone had much less chance that their pupils scored high rather than low than other promoters. Among the promoters from urban schools, there was a clear positive relationship between the number of persons in their household and the scores of their pupils at the finals.

The hypothesis that promoters who have a separate room to study at home, have a better chance that their pupils score high rather than low at the finals was confirmed among promoters from schools in capitals. Among the finalists who attended a school elsewhere, those whose promotor lacked a separate room to study scored slightly better than the pupils of promoters who had such a facility.

Study contacts of the promoters have been analysed with regard to the persons and institutions they dealt with, the effectiveness of improving their knowledge of the subject of the competition, and the conditions under which they made such contacts.

Pupils of promoters who had frequent contact with teachers in higher-level secondary education, obtained better scores than finalists whose promotor had no such contacts. Study contacts with other persons and institutions were hardly related to the pupils' chances of success at the finals.

Promoters who mentioned conferences on teaching methods, courses in the subject of the competition, or contacts with the scientific staff of the university as the most effective study contacts had the best chance of their pupils scoring high rather

than low at the finals. Contacts in which knowledge was transmitted directly by specialists were much stronger related to success at the finals than contacts with teachers of similar qualifications as the promotor's own (e.g. in groups for private study or attendance of lessons of other teachers).

No difference could be found between the scores at the finals of pupils whose promotor had good conditions for engaging in study contacts, and the scores of finalists whose promotor lacked opportunities for such contacts. The various reasons why a promotor had unfavourable conditions for study contacts seemed also to be unrelated to the pupil's chances of success.

The promoters' professional and social activities have been studied with regard to: the working hours at school, membership of social organizations, time spent at activities with pupils outside of school hours, and volunteer work out of school.

The length of the promoters' working week at school was only slightly related to the pupils' chances of success at the finals. Teacher-promoters with a normal working week had a slightly better chance of their pupils doing well at the finals than those who worked overtime or in a part-time function.

Promoters who were a member of an organization specializing in a school subject or of a political party had a better chance that their pupils did well at the finals than promoters who did not belong to such organizations.

Finalists whose promotor spent rather much time at work with pupils outside of school hours scored lower than those whose promotor spent a moderate time at these activities.

Promoters who did not or hardly engaged in volunteer work out of school had a better chance that their pupils did well at the finals than promoters who spent much time at such work. This relationship was stronger, the less urbanized the locality of the school.

XV. CHARACTERISTICS OF THE PRIMARY SCHOOL

In this chapter information is given on the following themes:

- the size of the finalists' primary schools, i.e. the number of pupils of the school;
- the availability of various provisions in the school, i.e. resource rooms, library and reading room, gymnasium, club room, canteen, and central heating;
the organization of the development of abilities;
- changes in the school during 1971-76 concerning the school organization, the methods of working with gifted pupils, and the material equipment of the school;
- the teacher-promoters' evaluation of these changes with regard to their use for the development of abilities and the pupils' attitude towards learning.

Comparisons with statistical information on primary schools in Poland are made on school size and the availability of various provisions.

1. School size.

Schools with many pupils offered teachers attractive jobs. Thus big schools mostly had well qualified teachers. Moreover, the number of pupils was decisive for employment of other professionals and personnel for a kitchen, club, etc. The size of the school was also relevant for its material equipment.

1.1. The pupils' chances of reaching the finals.

Two thirds of the finalists (67.9%, adjusted for missing cases) attended schools of more than 400 pupils (see figure I-5 and table I-5). This was more than the proportion among all Polish pupils of those who completed primary education in such big primary schools (57.6%). Thus, pupils from large schools had more chance of reaching the finals than pupils from small ones.

The number of finalists per 10,000 pupils who in 1976/'77 completed primary education was 71 among pupils from small schools (up to 100 pupils). It was only 66 among pupils from schools with 101 - 200 pupils, and 74 among pupils from schools

with 201 - 400 pupils.

Pupils from larger schools had decidedly better chances of attaining the finals: almost twice as much. The figure among those from schools with 401 - 700 pupils was 102, and that among pupils from schools with more than 700 pupils was the highest: 120 finalists per 10,000 pupils.

1.2. The pupils' scores at the finals.

The pupils' chances of success at the finals of the competitions were positively related to the size of their school (see table I-5a). An exception must be made for finalists who attended a school with less than 100 pupils. These pupils scored somewhat better than finalists from schools with 101 - 200 pupils.

Finalists from large schools (with more than 550 pupils) scored almost four times better than those from schools with 101 - 200 pupils.

1.3. Local background.

When the influence of the finalists' place of residence was controlled for, the positive relationship between success at the finals and school size remained the same among pupils living in the countryside (see table I-5a B). This relationship was less distinct among finalists from towns.

Among the finalists living in a capital, those from schools with 551 - 700 pupils got the best scores; they did slightly better than finalist from schools with 401 - 550 or more than 700 pupils, and they scored almost twice as well as finalists from schools with 201 - 400 pupils.

Among the finalists from other towns, those who attended schools with 201 - 400 pupils got the best scores, but their scores were not much better than those of finalists from larger schools.

1.4. Socio-occupational background.

The more favourable the finalists' socio-occupational background, the larger the median size of their school (see table

I-5a C). The median number of pupils in the schools attended by farmers' children among the finalists was 235. For workers' children it was 511, for teachers' children 579, and for the children of other employees 666. The proportion of finalists from schools with more than 700 pupils was among the latter ten times larger than among farmers' children.

A positive relationship between the scores at the finals and school size was found within each of the four categories of socio-occupational background. Among the children of manual workers and teachers, however, those from schools with more than 700 pupils scored somewhat lower than those attending a school with 551 - 700 pupils.

1.5. The pupils' scores at the half-finals.

At the half-finals, the regional stage of the competitions, the chances of scoring high rather than low were also positively related to school size (see table I-5a D). Participants from schools with more than 700 pupils scored twice as well as those who attended a school with less than 200 pupils. Half-finalists from schools with 201 - 400 pupils scored relatively well.

1.6. Discussion.

Children from schools with many pupils had more chance of reaching the finals than pupils from smaller schools. The former had also more chance of success at the finals.

Nevertheless it did not seem to be justified to conclude that it would be most effective to organize only big schools. A more profound analysis of the data showed that large schools had better educated teachers and a better material equipment. Teachers who were a member of a large team might be stimulated to work more effectively than those who had only one or two colleagues. It has already been remarked that a minimum number of pupils was a condition for the employment of well qualified teachers, a pedagogist, a physician, or other personnel, and for the material equipment of the school. School size might only indirectly be decisive for the pupils' chances of success in education.

A policy of concentration of schools to make education more

efficient, as was applied in Poland during the 1970s, may have had certain important negative effects on the rural population. Some of these negative outcomes are:

- loss of small schools as places for integration of the local community;
- loss of parental control over children;
- teachers less informed about their pupils' home situation.

A concentration of schools, whether in rural or urban regions, leads to an increase in the number of pupils who have to travel between home and school. This causes:

- waste of time, both in travelling and in waiting for bus or train;
- increased absence and late arrival at school;
- less effective learning, especially during the first lessons, because of fatigue of travelling and lack of night's rest;
- marked increase of expenditures, both public and private;
- increase of traffic-accidents.

It might be better for the effectiveness of teaching, as well as the well-being of pupils, parents, and the local community, if - instead of a concentration of schools - small schools were given a better educated teaching-staff and better material equipment, and teachers and pupils of small schools were given opportunities of contacting other schools and teachers. Competitions in school subjects and especially the period of preparation for these contests might offer a good opportunity of developing such a co-operation.

Edington (1980) seems to be right when he states:

"The problem is how to develop quality of education for the people, both youth and adults within the communities. Consolidation is nothing but a tool for bringing about this quality of education. In some cases, it may be more effective to consolidate. In many other cases, the worst thing that may happen to the community is for the school to disappear."

2. School equipment.

In the opinion of the teacher-promotors, the level of the material equipment of the school is strongly related to the pupils' chances of success at the competitions. This relation is the object of this section.

Indicators of the level of the material equipment of the

primary schools attended by the finalists will be: the presence of resource rooms - especially for the subject of the contest, the number of volumes in the school library, the availability of a reading room, club room, gymnasium, canteen, and the modernity of the school building (which will be indicated by the presence of central heating and of good sanitary facilities). These indicators of the material equipment of the school are compared with statistical information about all Polish primary schools, to assess their relevance for the chance of reaching the finals.

Further, the usual comparisons will be made between high scorers and low scorers, and between urban and rural schools, to estimate the influence of these factors on the chances of success at the finals.

2.1. Resource rooms.

The term 'resource room' refers to a classroom in which only one subject is taught and where all appliances for that subject are brought together.

The large majority of the primary schools attended by the finalists (92%) had one or more resource rooms. For the subject of the competition such a room was available in 75% of these schools. In 21% of the cases the room for the subject of the competition was denoted by the promotor as the best equipped resource room in the school (see table IV-12).

2.1.1. The pupils' scores at the finals.

Finalists who attended a school without a resource room scored slightly better than those from schools with a resource room in the subject of the contest, and they did almost half as well again as finalists from schools with a resource room, but not in the subject of the contest.

Pupils from schools where the resource room for the subject of the competition was the best equipped one, scored half as well again as those from schools where a resource room for another subject was better equipped, or without a resource room.

2.1.2. Urban and rural schools.

When the schools attended by the finalists were split up in urban and rural schools, the urban schools appeared to be better

equipped with resource rooms than rural ones (see table IV-12 B). One or more resource rooms were available in 99% of the schools in capitals, 96% of the schools in other towns, and 87% of the rural schools. A resource room for the subject of the competition was available in 83% of the urban schools and 65% of the rural ones. This resource room was the best equipped one in 28% of the schools in capitals, 23% in other towns, and 15% of the rural schools.

Among the finalists who attended an urban school, those from schools with one or more resource rooms, but not in the subject of the competition, obtained the best scores. The difference with the scores of other pupils from urban schools was not large, however. Finalists who attended an urban school where the resource room for the subject of the competition was the best equipped one, got somewhat better scores than the other finalists from urban schools.

Among the finalists who attended a rural school, those from schools with a resource room for the subject of the competition and those from schools without a resource room, scored more than one and a half times better than finalists from rural schools with resource rooms, but not in the subject of the contest. A similar relationship was found with regard to the best equipped resource room, but the difference between the scores of pupils from schools where the room for the subject of the competition was the best equipped one or without a resource room, and the scores of pupils from rural schools where a resource room in another subject was the best equipped one was only half as great.

2.1.3. Conclusions.

It follows that the availability of resource rooms as such is not related to the pupils' chances of success at the finals. Finalists from schools with a resource room for the subject of the competition, especially when this resource room is the best equipped one, have better chances of success at the finals than other pupils.

The presence of a well equipped resource room for the subject of the competition (rather than for other subjects) in more primary schools might have a positive influence on the pupils' chances of success in education.

2.2. The school library.

An overview is given of the number of books to one pupil in the schools of the finalists, the quality of the collection with regard to the subject of the competition, and the relation between these aspects of the school library and the pupils' chances of success at the competitions.

The average number of volumes in the libraries of primary schools in Poland was 17.2 to one pupil. The collections of the schools attended by the finalists were slightly larger, with an average of 18.8 volumes to one pupil, and a median of 15.7 (see table IV-15).

2.2.1. The pupils' scores at the finals.

Finalists from schools with 11 - 20 books to one pupil had the best chances of scoring high rather than low. This group of pupils did about one and a half times better than the other categories of finalists.

2.2.2. Urban and rural schools.

When the schools attended by the finalists were split up in urban schools and rural ones (see table IV-15 B) the median number of books per pupil was found to be larger in rural than in urban schools (17.0 versus 14.8).

The scores of the finalists from urban schools with 11 - 20 books and of those in the category 21 - 30 books to one pupil did not differ. Among the finalists who attended rural schools, the former category scored almost twice as well as the latter. Thus, instead of a positive relationship between the number of books to one pupil in the school library and the pupils' chances of success at the finals, a negative relationship was found for rural schools.

Rather large numbers of books to one pupil were mainly reported in small schools. Nevertheless, in such schools there could be a lack of necessary titles.

2.2.3. Availability of necessary titles.

The promoters have been asked whether the collection of the school library included all the books needed for effective preparation for the competitions (see table IV-15). The collection

of most schools attended by the finalists (52%) contained all necessary titles. A lack of fundamental titles was reported in 7% of the cases and a lack of supplementary literature in 9% of the schools.

A lack of titles in the collection of the school library was not necessarily a handicap for the pupils. Finalists from schools where only the latest titles were missing got the best scores. When fundamental literature was lacking, this was a handicap indeed. Finalists from such schools scored only half as well as those from schools where only the latest books were lacking.

A lack of fundamental literature was signalized more in rural schools (9%) than in urban ones (5%). A complete collection was reported in 60% of the urban and 40% of the rural schools attended by the finalists (see table IV-15 B).

2.3. Reading room.

One out of three schools attended by the finalists had a reading room (29%, adjusted for missing cases). When there was a reading room available, there were mostly 20 - 50 pupils to one place in it (see table IV-17).

Pupils from schools with a reading room scored half as well again as finalists from schools without such facility.

The relationship between the availability of a reading room and success at the finals could partly be explained by the level of urbanization of the school's locality. Adjusted for missing cases, 41% of the urban schools had a reading room and only 12% of the rural schools. Finalists who attended an urban school equipped with a reading room scored somewhat better than those from schools lacking that facility.

2.4. Club room.

The primary schools attended by the finalists somewhat more club rooms than the Polish average. Three of these schools out of four (74%, adjusted for missing cases) had a club room (see table IV-17).

According to the promoters, 42% of these club rooms were sufficiently large. Most clubs (70%) were run by full-time

personnel. The majority offered the pupils an elaborate program (77%), often with all-round activities (26% of the clubs).

2.4.1. The pupils' scores at the finals.

The availability of a club in the school was positively related to success at the finals.

Finalists from schools with a club room of sufficient size obtained the best scores. This group of finalists scored two times better than finalists from schools lacking such facility. Finalists from schools with too small a club room scored half as well again as the latter ones.

Finalists who attended schools with a club room run by full-time personnel scored somewhat better than those from schools where the club room (due to lack of personnel) was run by the teachers and they scored half as well again as pupils from schools where the club room was run by part-time personnel or by volunteers.

The kind of the activities in the club room was only weakly related to the pupils' scores at the finals. An all-round program was somewhat less favourable than one with elaborated elements.

2.4.2. Urban and rural schools.

Among the schools attended by the finalists, those in towns were much better equipped with club rooms than rural ones. The proportion of urban schools with a club room was much larger than that of rural schools: 89% versus 51%. Moreover, among the urban schools a twice as large proportion had a club room of sufficient size (38%) than among the rural schools (19%).

The proportion of the clubs run by full-time personnel was twice as large among the clubs of urban schools (80%) than among those of rural schools (41%). Many of the clubs of rural schools were run by part-time staff or volunteers (35% versus 11% of the urban clubs). The activities organized in the club room did not differ much between urban and rural schools.

The finalists from urban schools whose school lacked a club room scored much better than finalists from other urban schools. Although there were many of these finalists, very few scored low. It is possible, therefore, that this finding was incidental. No relationship has been found between the kind of

employment of the staff in the club room, and success at the finals of pupils from urban schools. The relationship between the kind of activities in the club room of urban schools, and the pupils' scores at the finals was similar to that in the whole sample.

Finalists from rural schools with a club room did twice as well as those attending a rural school lacking such a room. When the clubs of rural schools were run by full-time personnel, the pupils scored half as well again as when the clubs were run by others, and they scored three times better than finalists from rural schools without a club room.

2.4.3. Conclusions.

Club rooms were mainly organized in urban schools. This indicates that the major purpose of such a room was to create facilities for the care of children whose parents both have a job, rather than to give extra educational incentives to pupils who travel to school or who have a less favourable social background.

The findings indicate that the availability of a club room, especially a well organized one, is particularly helpful in improving the chances of success in education of the latter pupils. Children from a favourable social background, especially urban pupils, have many alternatives for the activities in the club room of the school. Examples of such alternatives are the out of school activities of community centres, club houses, and youth organizations.

2.5. Gymnasium.

The primary schools attended by the finalists were better equipped with gymnasiums than average schools. Whereas 72% of the former had a gymnasium, it was 48% among all Polish primary schools (see table IV-17). It follows that pupils attending a school with a gymnasium had more chance of reaching the finals of the competitions. The majority of the gymnasiums of the schools attended by the finalists was large (58%).

2.5.1. The pupils' scores at the finals.

Finalists from schools with a large gymnasium got somewhat better scores than those from schools with a small gymnasium. The former scored half as well again as finalists who attended a school lacking such a facility.

2.5.2. Urban and rural schools.

More urban than rural schools attended by the finalists had a gymnasium: 83% versus 55%. The urban schools were slightly less equipped with such a facility than the average urban school in Poland, but the rural schools markedly better. Thus, the chance of reaching the finals among pupils from rural schools was larger when there was a gymnasium. For pupils from a school in town it made no difference for their chances of attaining the finals, whether there was a gymnasium or not.

Finalists who attended an urban school had about the same chance of scoring high rather than low, whether their school had a gymnasium or not. Among the finalists who attended a rural school, those from a school with a large gymnasium scored half as well again as the other finalists from rural schools.

2.5.3. Conclusions.

The findings indicate, that a gymnasium contributes to the chances of pupils from rural schools of success at the contests. When there is a large gymnasium in the school, these pupils have more chance of reaching the finals and they have more chance of scoring high rather than low. For pupils from urban schools the availability of a gymnasium in the school seems to be irrelevant for the chances of success at the competitions.

These findings might be explained by the presence of similar facilities out of school. Pupils in urban schools may make use of gymnasiums and other sport facilities existing in other institutions. Pupils of rural schools have markedly less alternatives.

The relationship between the availability of a gymnasium in the school and the chances of success might indicate that a gymnasium is not only favourable for the physical development of pupils, but also for their mental development: 'a healthy mind in a healthy body'. Probably its positive influence depends on other factors as well, such as the availability of other

facilities in the school needed for the pupils' development and the absence of environmental factors that could disturb this development. The availability of a gymnasium might be a good indication of the presence of various other facilities in the school. Further analysis of the data would be needed to investigate this question of causality.

2.6. Canteen.

Among the schools attended by the finalists, 73% had a canteen (see table IV-17). All meals could be obtained in 37% of these canteens; 53% provided only warm meals, and in the other canteens (10%) the pupils could only have cold meals (e.g. breakfast). When there were warm meals available in the school mostly between 26% and 50% of the pupils had their warm meal there. In 40% of the cases up to 25% of the pupils made use of this facility, and in 9% of the cases this proportion was over 50%.

2.6.1. The pupils' scores at the finals.

Finalists from schools where all meals could be obtained had the best chances of success. These finalists scored somewhat better than those from schools where only warm meals were provided, and they did twice as well as the other finalists.

2.6.2. Urban and rural schools.

Among the schools attended by the finalists, the urban schools were better equipped with canteen facilities than the rural schools.

The proportion of the urban schools where all meals could be obtained was 36%, that of schools where only warm meals were provided was 46%, and in 4% of the urban schools was only a cold buffet. It follows that 87% of the urban schools had a canteen, and that in 83% of these schools warm meals were provided.

The proportion of the rural schools where all meals were available was 12%. Only warm meals were provided in 26% of these schools, and in 11% of the rural schools was only a cold buffet. Thus, one half of the rural schools had a canteen. In 39% of the rural schools warm meals could be obtained: less than half as large a proportion as among the urban schools.

When the schools of the finalists had a canteen where warm meals could be obtained, in 57% of the urban and 70% of the rural schools this facility was used by more than one quarter of the pupils.

Among the finalists who attended an urban school, those from schools where no warm meals could be obtained scored half as well again as those from schools where warm meals were available.

Among the finalists from rural schools, in contrast, there was a clear positive relationship between canteen facilities and the pupils' chances of success at the finals. Pupils from rural schools where all meals could be obtained scored almost half as well again as those from such schools where only warm meals were provided, and almost twice as well as finalists from rural schools where a canteen was lacking or only a cold buffet was available.

2.6.3. Conclusions.

It follows that the provision of warm meals at school has a positive effect on the pupils' chances of success, at least among pupils in rural schools.

The finding that pupils from urban schools where no warm meals were provided scored better than the other finalists from urban schools cannot be interpreted as an argument against the organization of canteens in urban schools. Such a conclusion is probably premature, because it is possible that urban schools without a canteen are mainly situated in privileged areas. In such schools might be few pupils whose mother has to work or who have to travel to school; hence most pupils in such schools live in the town and need no additional care. Rural schools - i.e. schools where the provision of warm meals was found to be the most important - were markedly less equipped with canteens than urban schools. Moreover, there were less canteens in rural schools where warm meals could be obtained.

The different extent of these facilities might deepen the inequality between pupils of urban and rural schools with regard to the development of their abilities. The results of research by various authors (e.g. Brzeziński & Kopczyński 1966; Bielicki et al. 1982) indicate that the physical state of the rural population was not as well as that of the urban population (the

former were of lower stature, they were often corpulent, etc.) and their adolescence started later. The fact that food is produced in the country does not imply that nutrition is better among the rural population. The material position of many farmers compelled them to sell the whole production of their farm, not even leaving indispensable products for use in their own family. The women's burden with work on the farm and in the kitchen garden, often left them less time for domestic work than an urban women with a paid job could spend.

Extension of the provision of warm meals in rural schools might contribute to improvements of the health situation of rural youth, and it might increase the chances of these children of success in education.

2.7. Modernity of the school building.

Two indicators for the modernity of the school building have been used: the presence of central heating, and the quality of the sanitary facilities (see table IV-17).

About three out of four schools attended by the finalists were centrally heated (77%) and had good sanitary facilities (73%).

Whether the modernity of the building was measured by the presence of central heating or by the quality of the sanitary facilities, the relationship between the pupils' scores was the same: pupils from schools with a modern building scored more than half as well again as the other finalists.

The urban schools attended by the finalists had much better buildings than the rural ones. Whereas urban schools for the greatest part were equipped with central heating (90%) and had good sanitary facilities (84%), hardly more than half of the rural schools met such standards (resp. 58% and 54%).

Both urban and rural schools were better equipped with central heating and sanitary facilities than dwellings.

Among the finalists who attended a school in town, there was no relationship between the modernity of the school building and their scores at the finals. Pupils from rural schools with a modern building scored somewhat better than the other finalists from rural schools.

It follows that the schools do not compensate for the major

differences in housing conditions between the urban and rural population. Rural schools represent often the same standards as the houses where the pupils live. By consequence, few rural schools give incentives for intensive learning and for a longer stay at school to participate in extra activities.

3. The organization of the education of able pupils.

Some methods of the organization of education will be discussed in this section. The teacher-promoters' opinion on the common method - the formation of heterogeneous classes - will be presented. Various alternative ways of organizing will be mentioned, which the promoters said would better stimulate the development of outstanding ability.

3.1. Heterogeneous classes and uniform program.

Education in heterogeneous classes, following a uniform and obligatory teaching program, was a generally applied method in primary education. Pupils were grouped heterogeneously with regard to abilities and interests.

The effectiveness of this organizational form for the education of gifted pupils was low in the opinion of the large majority of the promoters (84%). Less than one out of eleven thought this method appropriate for gifted pupils. Few promoters had no opinion on this matter (see tables V-1 and V-2).

Teacher-promoters who had a positive opinion on this method had somewhat more chance of their pupils doing well at the finals than promoters with a negative opinion. This relationship with success at the finals disappeared however, when the type of the school's locality was held constant: promoters from schools in capitals (whose pupils did much better than other finalists) almost twice as often had a positive opinion on heterogeneous classes as the others (see table V-1 B).

3.2. Heterogeneous classes and individual programs.

Education in heterogeneous classes, but using individual teaching programs for able pupils, was a method applied by rather few promoters (4%).

The proportion of those who preferred this method, was much larger (16%). Promoters who would like to introduce it often added that smaller classes would be required (see table V-2). Whereas finalists from schools where this method was applied did equally well as other pupils at the finals, those whose promotor preferred it scored somewhat lower than the other finalists.

3.3. Voluntary activities outside of lesson hours.

When in the school a uniform teaching program was applied in heterogeneous classes, extra voluntary activities could stimulate the development of special abilities. Various ways of educating able pupils outside of lesson hours, e.g. in circles of interest or clubs, were applied by a majority (58%) of the teacher-promoters (see table V-2).

Half as many (31%) preferred this method of educating able pupils. It was stated that most of the existing activities outside of lesson hours were intended to help less able pupils, who could not keep up with their class-mates. These activities aimed at bringing the participants' knowledge up to the average level. Development of abilities above the average was rare.

3.4. Individual program outside of lesson hours.

The uniform teaching program in the school could also be complemented by a special program outside of lesson hours for able pupils individually. This way of organizing was applied by the large majority (no less than 92%) of the teacher-promoters (see table V-2).

The proportion of promoters who preferred this method was one third of this (30%). Some reasons why this method was less preferred than applied were: the promoters' experience that pupils prepared too little for the individual activities, and the extra work it implied for the teacher, which was hardly or not at all rewarded.

3.5. Homogeneous classes.

The method of educating in special classes, where the pupils are grouped homogeneously with regard to their ability,

was not applied in Polish primary education.

One half of the promoters thought it an effective method of educating pupils of outstanding ability (see table V-2). The promoters might have based their opinion on this method on experiences of teachers and pupils in secondary education, where such special classes did exist. The risk early differentiation implies for the chances of school success of children from less privileged social groups has already been pointed out (chapters III - V).

3.6. Education of able pupils in special boarding schools.

Special boarding schools for the gifted did not exist in Polish primary education. This way of organizing the education of able pupils was preferred by 7% of the promoters (see table V-2). This rather small proportion might be the result of absence of a tradition of such schools in Poland, and of prevailing negative opinions on this method in the pedagogic literature.

3.7. The pupils' scores at the finals.

Finalists whose promotor preferred organizational solutions in which the able pupils are given extra attention by way of out of school activities scored somewhat better than pupils whose promotor preferred solutions that would be an integral part of primary education.

No relation could be found between the application of a certain method and the pupils' chances of success at the finals.

4. Changes in the school.

The promoters have been asked which changes took place in school during the period 1971-1976. A distinction was made between changes in the organization of the school, the methods of working with able pupils, and material equipment. These changes will be presented here, and be considered in relation to the finalists' scores and the type of the school's locality.

4.1. Changes in the organization of the school.

Organizational changes took place in the majority of the schools in the sample (81%, adjusted for missing cases). Relatively frequent changes were: the organization of resource rooms (28% unadjusted) or of out of school activities (27%), and the formation of a comprehensive school, by inclusion of other schools (25%). Other organizational changes were mentioned less: formation of profiled classes (6%), reduction of the number of classes (5%), founding of an integrated infant school (3%), and formation of classes for pupils with a delay in learning (2%).

4.1.1. The pupils' scores at the finals.

There was no clear difference between the scores at the finals of pupils from schools where nothing changed and of finalists from schools where some organizational changes took place (see table V-6a).

Only a weak relationship could be seen between the various organizational changes that were mentioned and the pupils' scores at the finals. Rather good scores at the finals were obtained by pupils from schools where profiled classes were formed, or where out of school activities were organized. Pupils from schools where resource rooms were organized or where the number of classes was reduced scored relatively low.

4.1.2. The locality of the school.

Organizational changes were somewhat less frequent in schools in capitals: both the proportion of schools without changes and the average number of the various changes were lower than in other schools.

Formation of a comprehensive school was noted primarily in villages. This type of change was noted half as frequent in capitals. The organization of a resource room was relatively frequent in towns other than capitals. The proportion of schools where out of school activities were introduced was about the same in each type of locality. The proportion of schools where profiled classes were formed was three times larger in towns than in the countryside. This indicates that the relation of this type of organizational change with the pupils' chances at the finals might be spurious. The number of cases in the

subsequent types of locality was too small, however, to make any further analysis.

4.1.3. Discussion.

Probably, experiments with the organization of education could be implemented more easily in advanced rural schools than in administrative centres. The introduction of reforms may have been troublesome in those towns that became the capital of a newly formed voivodship, shortly before the investigation. In such towns various general organizational changes took place in public administration and many other institutions. Distraction of the activities of local leaders hampered the strivings for the effectuation of the school reform. This gave pedagogists who had no clarity about the purposes of the reform the opportunity to keep education as it was.

Pupils from rural schools had more chance of obtaining low scores at the finals than high ones. Among the few pupils from rural schools where an infant school had been founded, there were relatively many high scorers. Integration of an infant school in a rural school might be an expression of much engagement and long range thinking by the teachers in such schools. Instead of wasting their energy in a struggle for retention of the school as it was, such teachers extended the tasks of the school with the care for infants, i.e. for coming pupils. This was an effective way of preventing the school from liquidation, at a time when priority was given to giant schools.

4.2. Changes in the methods of working with able pupils.

The methods of working with able pupils were changed in the large majority (82%, adjusted for missing cases) of the schools in the sample (see table V-6b).

The most frequent change was individualization of teaching in the class (43% unadjusted). Half as frequent changes were the application of activating methods for all pupils (22%), and the introduction of more interesting and more individual activities outside lesson hours (19%). In 9% of the schools systems of group teaching were introduced. Competitions in school subjects were newly organized in 8% of the schools, and a new teaching program was adopted in 3% of the cases.

4.2.1. The pupils' scores at the finals.

Pupils from schools where group teaching was introduced, out-of-school activities were made more interesting, or where competitions were organized scored somewhat better than other finalists. These categories of finalists did almost twice as well as those from schools where the methods remained unchanged.

4.2.2. The locality of the school.

The various changes in the methods of working with able pupils were more frequent in urban schools than in rural ones. The introduction of activating methods and of more interesting out-of-school activities were somewhat more frequent in rural schools.

Within the three categories of locality of the school, the relationship between the occurrence of changes and the pupils' scores at the finals was different. The only common finding was that pupils from schools where no changes took place had the least chance of scoring high rather than low.

Among the changes in schools in province capitals, the introduction of more interesting out-of-school activities had the strongest positive relation to success at the finals, whereas the introduction of activating methods was negatively related to the scores. In other towns the former change had a negative relation to success and the latter a positive one.

For pupils from schools in capital towns, it seemed to be important to improve individual activities and work in small groups (e.g. out of school activities, group teaching, or individualized ways of teaching). For pupils in other towns, collective improvements were better suited, and among those attending rural schools, both approaches seemed to be equally important.

4.2.3. Discussion.

For pupils attending schools in capitals or in the country, more interesting out-of-school activities appeared to be more important than improvements of the normal lessons. This might be due to overcrowding of classes and rather large numbers of slowly learning pupils at schools in an anonymous city environment, or in the country, where the childrens' help is often needed on the farm. Under these circumstances, there might be

little opportunity of training finalists at school. Hence, better results may be obtained by an individual approach. Work with the whole class is probably the most effective when the pupils know each other, have contacts after school, and are sufficiently prepared for common intellectual activity. Such conditions are probably more present in smaller towns, than in capitals or in the countryside. A test of this hypothesis would require further research.

4.3. Changes in the material equipment of the school.

Changes in material equipment consisted mainly of extension of the range of appliances (50%) or the purchase of new furniture (27%). Major changes of the school building were less frequent: an overhaul was reported in 7% of the cases and extension of the building in 5%. In some schools new facilities were created in the form of a club room (3%), a gymnasium (2%), or a canteen (2%). No changes were reported in 29% of the schools (adjusted for 12% missing cases - see table V-6c).

4.3.1. The pupils' scores at the finals.

The relation between the various changes and the pupils' scores at the finals was rather weak. Finalists from schools where some change took place scored slightly better than pupils from schools where the material equipment remained unchanged.

A comparison of the presence of the subsequent types of changes with success at the finals showed that pupils from schools where the range of appliances had been extended scored slightly better than other finalists, and half as well again as pupils from schools where the building had been extended.

4.3.2. The locality of the school.

Whereas in one out of three schools in capitals or in the countryside material equipment remained unchanged (33%, adjusted for missing cases), this proportion was much smaller among schools in other towns (23%). More cases of the purchase of appliances and furniture were reported in urban than in rural schools. Among the latter, there were more major changes of the building than in town, and there were also more cases in which a new club room or canteen had been opened.

Finalists from schools where material equipment remained unchanged scored less well than other pupils, especially among pupils from rural schools. In the category 'other towns', however, pupils from schools without changes did markedly better than those from schools where some change took place. The former scored twice as well as those from schools where new furniture had been bought. In contrast, the purchase of furniture was at schools in the countryside positively related to success.

It follows that pupils attending rural schools scored better at the finals when the material equipment of the school had been changed, especially when new furniture had been bought. The fact that investments had been made in rural schools, might be a symptom of good management: of inventiveness, stimulation of the teachers, the creation of good work conditions, and a good atmosphere.

4.4. The teacher-promoters' evaluation of changes.

The promoters have been asked which changes at school were the most favourable for the development of the pupils' abilities and which changes they thought necessary to improve that development.

4.4.1 Favourable changes.

Changes considered the most favourable for the development of the pupils' abilities were:

- improvements of the material equipment of the school (36%);
- the introduction of individualized teaching (25%);
- implementation of new teaching methods and contents (17%);
- employment of higher educated teachers (6%).

The opinions of teachers in urban schools did not differ much from those of promoters from rural schools, except for the opinion on changes in material equipment. A positive influence of changes in the material equipment on the development of the pupils' abilities was signalized less by promoters in capitals (32% - in Warsaw 28%) than by those in villages (34%), and especially in other towns (43%). It must be remembered that changes in the material equipment were the most frequent in the latter category.

Possibly, the material equipment of schools in capital

towns, especially in Warsaw, was relatively good in comparison to that in other places. Teachers in schools where no, or only minor changes in equipment took place might be less aware of the relevance of the school equipment than those whose material conditions at work had been improved so much that they could compare the effects of their work before and after the change.

4.4.2. Necessary changes.

The most frequent reactions to the question which changes would be needed to stimulate the development of abilities were:

- the formation of profiled classes (27%);
- better material equipment (22%);
- better pay and a shorter work week for teachers (20%);
- the organization of out-of-school activities (17%);
- reduction of the number of pupils in the classes (15%);
- differentiation of the content of learning (10%);
- teaching in groups, following different methods (8%), and
- the requirement that teachers complete an academic study (8%).

Teachers in urban schools relatively often stated that smaller classes would be needed for effective stimulation of the development of abilities (18% versus 8% among promoters in rural schools). The other proposals were about as frequently made by promoters from urban as from rural schools. Teachers from schools in Warsaw, however, had quite different priorities. More than promoters in other towns, they stressed the importance of improved material equipment, of completion of an academic study by the teachers, and of classes for pupils with learning problems.

5. Summary.

The chance of reaching the finals of the competitions was found to increase with an increasing number of pupils in the school. Pupils who attended a big school (with more than 700 pupils) had twice as much chance of reaching the finals as those from small schools (up to 100 pupils).

The chances of success at the finals were also positively related to school size. This positive relation was very clear among finalists who lived in a village, but less distinct among urban pupils. When the finalists were distinguished according to

socio-occupational background, the positive relation between school size and success at the finals remained, and it was stronger the more favourable the finalists' background.

The availability of various facilities and material means in the school was found to be positively related to the pupils' scores at the finals. These facilities and means were: resource rooms, especially for the subject of the contest; a large collection of books in the library; a reading room, club room, gymnasium, and a school building equipped with central heating and good sanitary facilities.

The relationship between school equipment and success at the finals could partly be explained by the influence of the locality of the school: urban pupils attended schools with better equipment. Among finalists who lived in the countryside, the availability of the various facilities and material means was clearly positively related with their scores. Among urban pupils, the relation with their chances at the finals was weak and sometimes (e.g. availability of a club room or canteen) even negative.

Generally, the promoters taught in classes where the pupils were grouped heterogeneously with regard to their abilities and interests. A few of them applied individual teaching methods for some of their pupils. The education of able pupils was done in out-of-school activities, mostly individually. No relationship could be detected between the organization of education, as it was applied, and success at the finals.

In the opinion of the promoters, the effectiveness of education of able pupils in heterogeneous classes only, was low. Other ways of organizing education were considered better suited to this end. The formation of special classes with pupils of similar ability was especially often preferred. Education of able pupils in special boarding schools, however, was preferred by rather few promoters.

Various changes took place in the finalists' primary schools during the period 1971-1976. This were mainly changes in the methods of working with able pupils (82% of the schools) and in the organization of the school (81%). Changes in the material equipment were reported somewhat less (71%).

Often mentioned organizational changes were: education in resource rooms, activities outside lesson hours, the formation

of a comprehensive school. Less frequent changes were: the formation of profiled classes, of classes for pupils with learning problems, and reduction of the number of classes. In comparison to the total of primary schools, those attended by the finalists were relatively often extended, rather than that the organization was reduced.

Frequent changes in the methods of working with able pupils were: individualization of teaching, application of activating methods, and more interesting out-of-school activities. Less frequent changes were: group teaching, the organization of competitions, and adoption of a new teaching program. The various changes had in many schools already taken place in the decade before that under investigation. Finalists from schools where the methods remained unchanged in the given period scored lower than other pupils.

Frequent changes in the material equipment of the school were extension of the range of appliances and the purchase of new furniture. Other, less frequent changes were: extension or overhaul of the building, and arrangement of rooms for education and care of pupils. From the description of the material equipment of the schools attended by the finalists followed that these schools were better equipped than average primary schools.

Organizational changes were relatively frequent among the rural schools in the sample. Changes in the material equipment of the school were relatively often reported in schools situated in towns other than capitals.

Changes that the promoters considered the most favourable for the development of the pupils' abilities were: improvements of the material equipment, individualization of teaching, and experiments with teaching methods and contents. Organizational changes were less mentioned in this respect. Among the changes the promoters considered to be needed for the development of abilities, organizational changes were much better represented.

It must be remembered that the investigation took place in a period of great school reform, which was insufficiently tested and prepared. This caused much misunderstanding and conflict. The period was one of the most troublesome of post-war education. Centralization without an appropriate extension of buildings and other equipment led to crowded classes and caused problems of travel and stay. Centralization could also lead to

concentration of pupils from localities that were set on odds (i.e. where the school had been closed down, or places that lost the competition for the comprehensive school) and thus to educational problems in such classes.

The findings confirmed observations of other authors with regard to the effects on the effectiveness of teaching and education - hence on the development of abilities - of:

- the material equipment of the school (Coleman et al. 1982);
- the application of differentiated teaching methods, especially individualized teaching (Kupisiewicz 1982) and group teaching (Albinski 1959);
- the quality of teaching contents, especially with regard to their relation to new scientific achievements (Okoń 1975);
- new forms of education (Muszyński 1977).

XVI. CONDITIONS FOR AN INTEREST IN THE COMPETITION

In this chapter some conditions for participation in the competition will be discussed.

It is to be expected that an interest in the subject of the contest is very important in this respect, because the large majority of the finalists were actually interested in it (see 12.1). Therefore, the first section of this chapter deals with the question who or what awoke this interest in the subject.

Besides an interest in the subject, there are various other motives for taking part in a competition, such as ambition or the will to realize the expectations of others. The reasons for participation are the issue of the second section.

Regular preparation might be another condition for participation in a competition. This assumption is supported by the finding that almost all finalists prepared for the competition, most of them at least every other day (see 13.4). The third section discusses the question who or what was most helpful to the finalists when they prepared for the contest.

1. Stimuli for an interest in the subject.

From the answers of the finalists to question I-22 (see table) it followed that their interest in the subject of the competition in most cases had been awoken by their teacher in that subject (57.2%). To a much smaller extent the interest was awoken by the family (15.5%) or the mass media (14.5%), and in a few cases (1.5%) by peers or acquaintances. Many finalists (17.2%) stated that their interest was spontaneous: when dealing with that subject matter, they happened to enjoy it.

1.1. Scores at the finals.

Finalists who obtained high scores at the finals more often than those who scored low stated that their interest in the subject was stimulated by their family or by themselves. A smaller proportion of those who scored high had their interest awoken by their teacher or friends. The former finalists scored half as well again as the latter, and twice as well as the few who were not interested in the subject of the competition.

scores at the finals, however, the interest relatively often was stimulated by their family or spontaneous, as compared to those who scored low. The role of the teacher was for the former somewhat less pronounced.

These relationships were found both among finalists from urban and from rural localities, and they were similar for those with an employee and a working-class background. The situation of farmers' children among the finalists was different: the interest of the high scorers was more often stimulated by their teachers (69%) and less spontaneous (17%), as compared to the farmers' children with low scores (56 and 20%).

2. Reasons for participating in the contest.

The finalists' most frequently mentioned reason for taking part in the competition was their ambition (41.7%). These participants stated that they liked to measure their strength against others, to come up to others, or to show their ability.

Intellectual motives were mentioned almost equally often (37.5%). The finalists who had such motives wanted to learn more, to be stimulated to extend their knowledge, to experience an intellectual adventure.

The third category of reasons were the moral motives: the will to realise an expectation placed upon them by their teachers, parents, or friends; the wish to defend the honour of their school.

High scorers mentioned the intellectual and ambitious reasons somewhat more and the moral motives less than those who scored low.

3. Help at the preparation for the contest.

The finalists were asked who or what had been most helpful when they prepared for the competition (see table I-26).

Three quarters of the finalists mentioned the school as the institution that helped them most (74.1%), one quarter the mass-media (27.2%), and one out of eight was helped by the parents (12.0%). A few finalists mentioned friends or gave other answers (2.4%), and some pupils said they were not helped at all (4.1%).

The finalists could give multiple answers to this question.

Therefore the sum of the percentages for each answer-category is more than 100. Those who said they were helped made an average reference to 1.3 categories.

3.1. Scores at the finals.

In comparison to finalists who scored low, those who got high scores were somewhat more assisted by their family and friends (14 and 3% versus 10 and 2%), and somewhat less by the school (75% versus 80%). The former finalists and those who had no help did half as well again as pupils who were assisted by their parents or who mentioned the media as most helpful.

3.2. Local background.

Among the finalists who lived in a capital town, those who were helped by their family scored somewhat better than others (see table I-26 B). As for the finalists from other towns no relation could be seen between helping persons or factors and the chances of success at the finals. Among the finalists from the countryside, those who had no help obtained the best scores: almost twice as well as when the teacher or school had been most helpful.

3.3. Socio-occupational background.

Especially teachers' children were often helped by their parents (see table I-26 C). Almost one of these finalists out of four referred to parental help (23.7%). This proportion was twice as high as among the children of other employees (12.6%); more than four times as high as among workers' children (5.3%), and almost ten times as high as among farmers' children (2.5%).

Assistance by the school was mentioned somewhat more by the children of workers and farmers (82.6 and 81.2%) than by the children of teachers (75.9%) and other employees (77.0%). In comparison to the other finalists fewer of the farmers' children had no assistance at all.

Among the children of teachers, those who had no help obtained the best scores. These pupils did half as well again as those who were assisted by the family or the media, and almost

twice as well as those who were helped by the school.

Among the children of other employees, the best scores were obtained by those who had help of friends. These finalists did half as well again as those helped by their family or school or without any help, and twice as well as those who mentioned the media as most helpful.

Workers' children with help from their family did half as well again as those assisted by the school or the media.

Among the children of farmers no relation could be seen between who or what helped at the preparation for the contest and the scores at the finals.

3.4. Conclusions.

Almost all finalists were assisted at their preparation for the competition, and in this the school played a major role. Assistance by the school was especially important for farmers' children, and rural youth as a whole. Help by the school was however less effective than parental help. It is to be expected that systematic stimulation and control of the pupil's work are needed for the education to be effective. This is possible to a larger extent at home, rather than in the school. Preparation for the competition mainly needs to be done in addition to obligatory school-activities. Teachers are not in a position to spend as much time as parents or friends helping a child to prepare for a competition.

Assistance by the mass-media was particularly important to improve the chances of rural pupils. No clear relationship with success at the finals could be seen when local background was not held constant. This means that mass-media are important for all children from the countryside, irrespective of their socio-occupational background.

Finalists who got help from family and friends had more chances of success at the finals. Assistance by the family was particularly important for the children of employees, especially teachers' children. The other finalists, particularly farmers' children, were rarely helped by their family. Peasants and manual workers often had insufficient education to be able to help their children to study. The only thing such parents could do was to provide favourable learning conditions: encouragement,

a place to study, free time, approval of their child's effort, praise, etc. From other research it can be seen that children from less privileged social groups even such help is given rather rarely (Kohn 1969a).

XVII. THE FINALISTS' FURTHER SCHOOL-CAREER

A multivariate approach.

This chapter will be devoted to the finalists' further attainments in education in comparison with the performance of their class-mates in secondary school. A multivariate analysis will be applied to ascertain which factors were the most decisive for attainments in secondary education: the place of residence, socio-occupational background, sex, or participation in the competitions.

For readers who have no acquaintance with the Polish system of secondary education, a short description of the relevant school types, the principles for admission to these schools, and the permeability of the school system will be given.

The distribution of the finalists over the whole spectrum of secondary education will be compared to the proportions of the various school types attended by the pupils who entered secondary education.

1. The choice of a school for secondary education.

A decisive moment in a pupil's school-career is reached at the end of primary education, when a choice must be made among the various types of secondary education. The finalists' choices will be discussed in comparison to the choices of all pupils who left primary school in 1977.

For a long time admission to a secondary school, especially a school for higher-level secondary education, depended on the results at an entrance examination. This method of selection had been abandoned in the year when the finalists of the contests under investigation had to choose a secondary school. Attendance at a school for further education depends on various other factors as well, e.g. performance in primary education, personal interests and aspirations, opinions of teachers and parents, the presence of schools of given types, boarding facilities, and the availability of material support. Another determinant of this choice is the school system as a whole.

1.1. Polish schools for secondary education.

The Polish school system includes three school types at the secondary level: the basic vocational school for lower-level secondary education, 'technikum' and 'liceum' (grammar school). The latter two are forms of higher-level secondary education.

The leaving-certificates of the liceum and technikum give access to university entrance examinations. In order to enable those who complete basic vocational school to obtain a higher level certificate, if they wish, there is a 'shortened' form of the technikum with an adequate curriculum.

The course-length of the vocational schools is not uniform and depends on level and specialization.

- There are 2-, 2.5- and 3-year variants of the basic vocational school, which in 1977 had 40%, 7%, and 53% of the pupils in the first grade, respectively (RSSz 1978/79: 93).
- Technikum lasts 4, 5, or 6 years, with 52%, 45%, and 2% of the first-grade pupils respectively. The courses at the shortened technikum last 2.5, 3, or 4 years, with 4%, 93%, and 3% of the first-grade pupils respectively (RSSz 1978/79: 115).
- Liceum always lasts 4 years.

Since most primary school leavers have not yet reached the age at which compulsory education ends, only few of them stop with their full-time education: 4.1% in 1978 (RSSz 1978/79: 21).

In spite of the fact that the (eventually shortened) technikum also gives admission to the university entrance examinations, the large majority of university students (75 - 80%) are liceum graduates (Kozakiewicz 1973: 139).

The interest in an academic study is enormous. In 1978 there were 138,107 participants in the entrance examinations, although only 54,246 of them were admitted to university (39%). During the same year 358,482 young students obtained the higher-level secondary school leaving certificate and thus the right to take part in the entrance examinations.

Many of those who failed the entrance examinations did not give up their academic training and started one of the forms of part-time university education. The Polish system of part-time education (offered at all levels, including university) is very important for the chances of success in education. In 1978 there were more university graduates from part-time courses than from

full-time education (Nakielska-Cremers 1985: 27-28).

The Polish system of secondary education keeps alive the hope of reaching university. Access to university is given both to those who have completed general secondary education (liceum) and those who have completed higher-level vocational secondary education (technikum). In fact, the latter are usually more oriented towards their future job and therefore those among them who want to continue education mostly attend part-time courses.

A major difference between general and vocational secondary schools, with regard to access to university, is the period at which pupils can go to university. This period is the shortest in liceum (4 years) and the longest in basic vocational schools (2-3 years there, plus 3 years shortened technikum).

The choice for the longer way via vocational schools has the advantage of the highly valued intermediary diploma's. If a pupil does not succeed at a higher level (for instance at the university entrance examination), not everything is lost. The leaving certificate of a technikum offers better occupational chances (in the given field) than that of a liceum. Of course, the main reason for choosing vocational secondary education is to get an interesting job. Therefore also a 3-year shortened technikum exists for pupils who finished two grades of liceum.

1.2. The finalists' choice.

In 1977 most of the primary school leavers continued learning in basic vocational schools (55%), the rest chose higher-level secondary education: technikum (26%) or liceum (19% - RSSz 1978/79: 21-22). These figures were very different from the choice of the 393 finalists in the sample, of whom only 9% continued education in a basic vocational school, while 34% attended technikum and 56% liceum.

It may be concluded that the large majority of the finalists continued education in those schools that provided the best prospects for further success in education.

2. Performance in the first grade of secondary school.

A very interesting question is, whether the factors that have been found to be strongly related to success at the

competitions determine a pupil's chances of other forms of success in education as well. This will be the issue of this section.

Whether finalists performed better in secondary school than other pupils, will be investigated on the basis of information obtained from finalists and their class-mates in secondary education (questionnaire II). The large size of this sample permitted the application of a log-linear method for further investigation of determinants of success in education. The discussion of success in the first grade of secondary education will concentrate on the results of this multivariate analysis.

2.1. The sample.

The information that was obtained from finalists and their class-mates in the first grade of higher-level secondary school concerned performance (school marks) in the field of linguistics and humanities, performance in mathematics and science, gender, place of residence, and socio-occupational background.

Table II-1 presents a comparison of this sample with statistical data on pupils who completed primary school in 1977 and with the total of finalists.

2.2. The variables.

Pupils who had more very good marks than good ones and no lower marks are said to have high marks. This is the criterion for good performance at school. The other variables are expected to be related to the chance of getting high marks. The variables will be presented briefly.

1. The first variable in the analysis is the attainment or the failure to attain high marks (1 = high marks, 2 = other marks).
2. Attainment of the finals of the competitions (1 = finalist, 2 = class-mate).
Of the 9,454 pupils in the analysis 354 were finalists (3.7%). Those who did not reach the finals will be indicated as 'class-mates'.
3. Place of residence (1 = town, 2 = village).

The proportion of urban youth was 67% (among finalists 68%).

4. Socio-occupational background (1 = employee, 2 = other).

The proportion of the children of employees was 57.3%, that of workers' children was 28.3%, that of farmers' children was 12.0%, and there were 2.4% children from other occupational categories (among the finalists it was 68%, 19%, 12%, and 2% resp.). The number of finalists in the latter two categories was insufficient for a detailed analysis. With regard to the findings discussed in chapter 11, it has been decided to make a dichotomy of children of employees versus other pupils.

5. Gender (1 = girl, 2 = boy).

The proportion of girls in the analysis was 59.6% (55% among the finalists).

6. Field of school subjects (1 = linguistics and humanities, 2 = mathematics and science).

2.3. Analysis.

The large number of cases in this study of the chances for high marks in the first grade of secondary education allows for a comprehensive analysis of the interrelations between these variables. This could be done by means of Goodman's log-linear method for the analysis of contingency tables ECTA (Goodman & Fay s.a.; Gadourek 1976). The analysis consists of the prediction of cell-frequencies. It leads to a formula similar to that of multiple regression. It is a sort of multiple regression of the cell-frequencies on subsequent (combinations of) variables. For the reasons explained in chapter VIII (pp. 133-134), the influences of all variables have been included. A print-out of the results of this analysis of the saturated model is given in appendix C.

2.3.1. The interpretation of the output.

When ECTA is interpreted as a form of regression analysis, the beta-coefficients of that regression can be obtained by taking the figure in the first column of the table in appendix C (the column indicated as the 'effect') twice. The sign of the effect indicates whether the relationship between the given variable(s) and the cell-frequencies is positive or not.

The standardized values in the third column represent the connected t-values (student's t, with 63 degrees of freedom).

When this figure is zero, it is highly probable that the cell-frequencies are independent of the given variable (or combination of variables). The more it deviates from zero, the stronger the probable influence of the variable(s). When this standardized value is more than +2.00 or less than -2.00, the probability of the null-hypothesis is less than 5%.

The single effects of the variables denote no more than the distribution of the given dichotomous variable, as described before (17.2.2). The fact that there were only 3.7% finalists in the analysis (the proportion of value 1 of variable 2 is much smaller than that of value 2) is expressed by the very large effect (-1.343) for variable 2 (attainment of the finals). For the variables 1 to 5 this effect is statistically highly significant, and denotes a very skewed distribution. The effect of variable 6 (subject field) is negligible.

2.4. Results.

The combined effects of variable 1 (high marks versus low ones) with one or more other variables denote the relevance of the latter for the chance of obtaining high marks. These figures are the most interesting for the subject of this chapter and will be discussed in more detail.

- 1-2 Attainment of the finals of the competitions is the most important determinant of performance in secondary school (effect .538).
- 1-4 Socio-occupational background is the next in strength. Children of employees have much more chance of obtaining high marks than other children (effect .151).
- 1-3 Local background is also strongly related to performance. Urban pupils have much better chances than rural children (effect .128).
- 1-5-6 The combination of sex and field of studies is relevant (effect .087).
- 1-4-5-6 The influence of the latter combination is different for finalists and for class-mates (effect .079).
- 1-3-4 There is an effect of the combination of place of residence and socio-occupational background on the chance of obtaining high marks (effect -.065).

1-2-3-4 Combinations of local and socio-occupational background have another influence for finalists than for class-mates (effect $-.064$).

It must be remarked that a statistically significant result is not always theoretically relevant. Interpretation of effects of higher order, i.e. the effect of a combination of variables, is not easy. The interpretation of the sign of an effect of high order is especially troublesome. The findings have therefore been used to make a directed search for relations between the various variables with the chance of obtaining high marks.

2.5. Differences in the chances of obtaining high marks.

Finalists had a 48% chance of obtaining high marks (see table II-2). There was only a slight difference in these chances between girls and boys, but the chance of obtaining high marks among the finalists was markedly better for employees' children than for the others (53% versus 38%), as well as for urban pupils than for children from the country (53% versus 36%). For children of employees the chances were not much better when they lived in a town or in a village (54% versus 47%), but among the other finalists urban pupils had twice as much chance of obtaining high marks (51%) as rural children (25%).

For class-mates (who did not attain the finals of the competitions) the chance of obtaining high marks was 10%, i.e. one fifth of the finalists' chance. Thus, those who reached the finals of the competitions had more chance of success in their further school-career - at least at the beginning of secondary education - than others.

Both among finalists and class-mates, girls had about the same chance of obtaining high marks as boys. The difference in these chances between children from town (12%) and the country (6%) and - even more - between children of employees (13%) and others (6%) was larger among the class-mates than among the finalists.

Whereas the influence of socio-occupational background was weak among finalists from town, it was strong among the finalists from the country and among the class-mates, whether living in a town or not. Class-mates whose parents were employees had almost twice as much chance of obtaining high

marks when they lived in town as in the country.

Clear differences in the chances of girls and boys, with regard to the field of the subject (humanities or science), were only found among the finalists whose parents were employees, not among other finalists or class-mates. Daughters of employees, whether living in town or not, had much better chances in humanities than in science. Sons of employees had much better chances of obtaining high marks in science than in the field of humanities (also irrespective of their local background).

XVIII. SUMMARY OF THE MAIN FINDINGS

The competitions in school subjects for pupils in primary education enjoyed a good reputation among pupils, parents, and teachers. This was mainly the result of the fascinating themes that made the competitions a valuable cognitive and educating experience, not only for the numerous participants, but also for their teachers. The contests offered an opportunity of getting into contact with pupils and teachers from other schools and social groups who also shared knowledge of the given subject at a high level. The best pupils had the opportunity of measuring their own intellectual capabilities against others who were equally talented.

Especially for children from less privileged social groups, the competitions provided an opportunity of improving their chances of success in other fields of education.

Many promoters, especially those of the children of farmers and manual workers, proposed a broadening of the scope of the competition. Sometimes the contests had an examination-like character and only tested the pupils' knowledge and skill.

Selection of those to be admitted to the finals was mainly done only on the basis of scores. Social preferences were rarely applied. Participants were given the same tasks, without regard to the difficulties that the pupils of various social background had to overcome in order to attain a given goal. Thus, the chances of success at the competitions differed among pupils of various social background.

The scores at the finals in mathematics were more evenly distributed than at the finals in Polish language. At the latter the highest and the lowest scores were the most frequent.

There was a much better chance of attaining the finals in mathematics than in Polish language, but especially among farmers' children, the scores at the finals in Polish language were better. The latter finding was contrary to the hypothesis that pupils from less privileged social groups have better chances of success in mathematics than in Polish language.

The chance of reaching the finals improved with an increasing level of urbanization of the place of residence. Pupils from Warsaw had a three times better chance of becoming a

finalist than pupils from other towns, and six times more than children from the countryside.

The difference in the scores at the finals between urban and rural youth was even more dramatic: finalists from Warsaw scored 24 times better than pupils living in a village without a school or other cultural institution, and they did 12 times better than finalists from other villages. The scores of pupils from Warsaw were almost six times better than those of finalists from other towns.

Some evidence was found for the hypothesis that pupils who live near the school have better chances of success at the contests than those who have a troublesome journey to school.

Among finalists who lived out of the province capital, the scores decreased with an increasing distance from this cultural and administrative centre. Those who lived more than 60 km. away were an exception of this tendency. Perhaps these pupils lived closer to the capital of another province.

The influence of the family on the chances of success at the competitions has been investigated primarily in respect of the occupation of the parents. The chance of reaching the finals was for children of employees 11 times better than for farmers' children and 6 times better than for those of manual workers. Similar differences between these groups were found with regard to the scores at the finals. Except among farmers' children, the chances of scoring high rather than low were better when both parents belonged to the same, not to another, occupational category. The socio-occupational background was found to be of major importance for the chance of reaching the finals. It was also strongly related to success at the finals, but here local background seemed to be even more relevant.

Large differences in the chances of reaching the finals and scoring high rather than low, were also found with regard to the educational level of the parents. The scores at the finals were better, the higher the parents' educational level. Non-academic tertiary and lower-level secondary education of the parents were found to be less favourable than the next lower educational level. The parents' educational level was highly congruent with their socio-occupational level.

Finalists scored better, the smaller the number of children

in their family. Whereas among the children of employees the first-born had the best chances of success, in farmers' and workers' families third children had better chances.

Success at the finals was found to be positively related to the number of books in the home library, and to the quality of the finalists' place of study at home.

A moderate time expenditure given to helping parents was found to be favourable for success at the finals. However, among the children of manual workers and farmers much help to parents was even more favourable.

Contrary to expectations, very much or very little free time appeared to be the most favourable for success at the finals. The way in which pupils spend their time might be more important than how much free time they have.

The life orientation of the large majority of finalists was characterized by broad interests, especially of an intellectual kind, and by a striving for success in education or in a professional career in technology, humanities, medicine, or the natural sciences. An interest in intellectual matters was more frequent among finalists who scored high than among those who got low scores. The freetime activities of both groups of finalists were nevertheless very much the same.

Pupils who took part in the contests were in the highest grades of primary school. Nevertheless, a substantial number had no clear idea about their further career. These pupils, who apparently had difficulty in choosing a subject to specialize in, did very well at the finals. Very good scores were also obtained by those at the finals in Polish language whose professional ambitions were in mathematics, or inversely, by finalists in mathematics with ambitions in linguistics.

The finalists' notions of success in life were mainly connected with attainments in education and with the realization of a desired occupation. Success in life was rarely associated with earnings or wealth. Finalists with pronounced altruistic ideas of success in life had the best chances of success.

Most of the finalists were characterized by their promoters as level-headed and self-possessed, diligent, able to express their opinion, competent in problem solving, with a good memory,

and a great knowledge of the subject of the competition.

Almost all finalists prepared intensely in advance for the competition. Systematic preparation was especially important for pupils from a less favourable social background.

All finalists did very well at school. Many of them had consistently very good marks for all subjects. A large majority demonstrated creative abilities. Half of them were described as one of the few most able pupils their promotor knew.

Pupils who distinguished themselves by traits of intellect did better than those whose distinctive traits were related to social behaviour. However, the few pupils who were denoted as unbalanced, impetuous, or aggressive scored twice as high at the finals as other pupils. Finalists whose promoters described them as the most able they knew scored four times better than pupils who did not distinguish themselves by their ability.

Whereas there were slightly more boys than girls at the finals in mathematics, girls had a four times greater chance of reaching the finals in Polish language.

Although there were relatively many girls among the finalists, the boys had more chance of scoring high rather than low, especially at the contests in mathematics. It was mainly among the finalists with a less favourable social background that the boys did better than the girls.

The teacher-promoters of the finalists had a higher level of formal education than average teachers in Polish primary schools. The promoters were also older and had a longer experience with pedagogical work.

Finalists had a better chance of success at the finals when their teacher-promotor had a higher level of education, longer experience with pedagogical work (but not too long), had frequent study contacts with teachers in higher-level secondary education and with specialists in pedagogy, was less burdened by work at school or volunteer activities and, finally, was married with children. With respect to the first two of these traits the relationship with the pupil's scores at the finals was stronger for pupils from rural schools than from urban schools, and the latter traits were more important for pupils from urban schools.

The primary schools attended by the finalists had more pupils than average schools in Poland. Moreover, these schools were better equipped with subject rooms, libraries and reading rooms, club rooms, canteens, gymnasiums, sanitary facilities and central heating.

The teaching of pupils in homogeneous groups with regard to their ability was also more applied than elsewhere.

In the finalists' schools more changes took place during 1971-76 than in average schools. These changes mainly consisted of extension of the school organization, introduction of new forms of education, new methods and contents of teaching, and improvement of the school's material equipment.

School-size and the availability of various facilities and material means at school were positively related to the pupils' chances of success at the finals, especially among pupils from the countryside. This indicates that improvements of school equipment may contribute to an increase in the pupils' chances of school success, particularly in rural schools.

More finalists who lived in a town attended larger schools, with better equipment, more highly educated teachers, and where during 1971-76 more changes took place that favoured their chances of school success than finalists who lived in the countryside. Urban children may probably be accustomed to making a better use of a material basis for help in learning that is available both at home and in other institutions.

The changes at school which the promoters thought the most favourable for the development of the pupils' abilities were: improvements of the material equipment, individualization of teaching, new teaching methods and contents, and employment of higher educated teachers. These changes were also mentioned the most as measures that were needed for the education of able pupils. Other changes the promoters considered necessary for the development of abilities were: the arrangement of profiled classes, better pay and reduction of working hours for teachers, interesting out-of-school activities, and smaller classes.

Almost all finalists learned in heterogeneous classes. Special preparation for the competitions was usually organized outside lesson hours, in an individual way.

Interest in the subject of the competition was primarily due to encouragement of teachers. The school also played a major role in the preparation for the competition. Encouragement and help by the school was especially important for pupils with a less favourable social background.

Children whose parents stimulated and helped them in preparing for the contest had the best chances of success. Encouragement and help from parents were the most frequent and fruitful among children of teachers and other employees.

Mass-media were found to be effective for rural pupils in each socio-occupational category.

The large majority of the finalists continued their school career in higher-level secondary education, particularly in grammar school (liceum), the shortest way to university in Poland. Their performance in the first grade of secondary education was much better than that of their class-mates: they had five times more chance of obtaining consistently very good marks.

The chance of obtaining very good marks in the first grade of secondary education was moreover strongly related to those factors that have already been identified as major determinants of success at the competitions. Socio-occupational background was found to be the most relevant of these determinants. The place of residence was also a very important factor. The influence of these two factors on the pupils' chances was further strengthened by the combination of both determinants: socio-occupational background was especially relevant for pupils living in a village.

A similar combined effect on the chances of obtaining high marks was found for gender and field of studies. Girls did relatively well in humanities and boys in science. This relationship was only found among children with a favourable socio-occupational background.

XIX. CONCLUSIONS AND DISCUSSION

Competitions in school subjects among pupils in primary education were found to be an opportunity for pupils with high intellectual ability of getting into contact with each other. Such pupils from different schools and often from various social milieux could get acquainted, or could overcome any limitations in knowledge, experience, and culture which resulted from their school and social environment. It follows that the competitions offered a chance of developing their abilities and decreasing social inequality.

Strong relations have been found between various social, pedagogical, and psychological factors and the chances of success at the competitions in school subjects. It is to be expected, therefore, that the extension of positively correlated factors and the limitation of negatively related ones leads to increased chances of success at the contests for pupils from a less favourable social background.

Most of the hypotheses were supported by the findings or led to suggestions for further, more detailed investigations. Examples of hypotheses that were not confirmed were those concerned with the relations between success at the competitions by pupils from various social background and: the subject of the contest, gender, and some characteristics of the teacher in the subject of the competition (qualifications, marital status, age, professional and volunteer activities).

Boys were found to have less chance of reaching the finals of the competitions than girls. Among the finalists, however, the boys scored better than the girls.

Success at the competitions was mainly attained by pupils who had also already been successful at school. Admission to the finals and especially a victory at the competition were often very helpful with the entrance to the secondary schools that give the best perspectives for a future career. Factors that are clearly related to success at the competitions may therefore be expected to be relevant for other forms of success in education

as well. Achievements in education are often a precondition for further success in life. Many more finalists considered attainments in education as the greatest success in life than other children of their age.

Pupils who were used to work independently had better chances of success at the competitions than those who tended to submit to others. Therefore, it is to be expected that extension of the opportunities for independent action, for the search for good choices among many alternatives, and for the working out of private solutions in educational tasks would have a positive effect on the pupils' chances of success.

The pupils' local background and the socio-occupational position of their parents had the strongest relation with their success at the competitions. Whereas the chances of reaching the finals differed the most in relation to the parents' educational and occupational level, local background was the strongest correlate with success at the finals.

The forming and educating role of the competitions was found to be more pronounced for pupils of less privileged social background than for the more privileged when:

- there was a longer tradition in the organization of such competitions in the given province;
- the school showed an early and great interest in the theme of the contest and provided the necessary material;
- social background was taken into account at the selection for admission to higher stages of the competition, i.e. when the best participants out of the subsequent social groups were selected and not simply all those who obtained a given score;
- promoters, especially those of participants of less privileged social background, took part in the organization;
- the competition was an engaging spectacle for all those interested in the subject, instead of a sort of examination;
- participants and promoters received compensation for their extra costs (of travel and stay, purchase of material, time for preparation, etc.);
- promoters were aware of social determinants of their pupils' knowledge;

- promoters were in favour of social equality.

Thus it may be stated that competitions in school subjects offer pupils a chance of overcoming barriers resulting from attending at a school with rather poor equipment, gathering pupils from less privileged social groups, and situated in a place with a weak educational, cultural, social, economical, and communicational infrastructure. Especially when they stimulate many of those interested in the subject, competitions give pupils of similar ability and interests from different schools an opportunity to learn, to be taught, and to exchange ideas together.

For education as a whole it may be concluded that attending a primary school possibly close to the pupils' home, in combination with education of pupils from several schools in specialized groups would be favourable for the development of intellectual abilities, without harming the pupils' emotional and physical development.

The high professional qualifications of a teacher-promotor were more strongly positively related with the chances of success among children from the countryside than from town. Pupils in the country probably need the guidance of teachers who have themselves achieved a high educational level. In fact, teachers in rural schools had a lower average level of formal education than their colleagues in urban schools, took less supplementary instruction, and had less opportunity for study contacts and participation in cultural life. If access to educational and other cultural goods was made easier for teachers in rural schools, and appropriate incentives were given to them in order to improve their professional qualifications, this would probably increase their pupils' chances of success.

The standard of the material equipment at the schools was positively related to the pupils' chances of success at the competitions. Moreover, the quality of this equipment might be a factor that incites to learning, especially when it clearly exceeds the standard of equipment in the pupils' homes. Thus, improvements in the material equipment of schools, especially in socially less privileged environments, may contribute to a reduction of inequality in the chances of success in education.

It must be remarked that competitions and other forms of educational action may play an integrating as well as a desintegrating role, depending on the way in which they are organized. An integrating effect, i.e. a contribution to social equality in society, is obtained when the competition offers the participants a new chance of improving their achievement at subsequent meetings and contests. Competitions where weaker pupils are eliminated from the game for success in the given field play a rather desintegrating role.

Pupils from a less privileged background (whether with regard to their place of residence, the socio-occupational position of the parents, the qualifications of their teachers, or size and equipment of the school) might have improved chances of success at competitions organized in a way stimulating a broad public (of pupils, teachers, parents, and others) to engage in the subject, and preceded by meetings, common lectures, and discussions among pupils and teachers from various schools. Such an improvement of the chances of success is hardly to be expected at competitions where the questions are not made public, and the discussion on these topics is limited to the closed group of the organizing committee and the individual pupils.

It might be better for the effectiveness of teaching as well as the well-being of pupils, parents, and the local community if - instead of a concentration of schools - small schools were to have better educated teaching-staff and better material equipment, and teachers and pupils of small schools were to be given a greater opportunity of getting into contact with other schools and teachers. Competitions in school subjects and especially the period of preparation for these contests might be a good opportunity for engaging in such co-operation.

The findings of the empirical investigation on determinants of success at competitions in school subjects suggest that the chances of success in education of pupils from less privileged social groups would increase with the following changes and measures:

- increased education of parents from less privileged social groups;

- improvement of the material conditions of such pupils at home, especially with regard to the availability of books and other cultural goods;
- increased pedagogical knowledge of the parents;
- persuading parents of the value of education and the need to allow their children sufficient time to learn;
- improvement of the material equipment of schools and a change of teaching methods and principles in some schools;
- increase of the level of education of the teachers.

These changes would be particularly important for the rural population. Moreover, it would be necessary to ensure that more educational, cultural, and social institutions were available in villages. These institutions would have to be well equipped materially as with a qualified staff.

Extension of the communication between town and country would be another important aspect for the chances of rural pupils. These changes would also have positive effects on the teachers in rural schools. Improved communication would enable the teachers to maintain contacts with specialists in education and to keep up their knowledge.

Due to a lack of teaching staff and other intellectuals in the country, teachers from rural schools have had to accept many additional duties at school and in the community. This has led to a high work load, which was found to be negatively correlated with their pupils' chances of success.

It has been found that many teachers assumed that ability is entirely biologically determined. Social privilege was seen as the result of rewards according to meritocratic principles: the more able would work better and therefore earn more than others. Socio-economical and cultural conditions for the development of abilities were rather rarely noticed.

It is to be expected that increased knowledge of society among teachers would lead to less narrow-minded ideas about the intellectual capacities of children from a less favourable social background. This would open the way for stimulating the development of abilities among this youth and thus improve their chances of success in education.

From the various studies presented in part 1 and from the findings of the empirical investigation discussed in part 2, several conclusions can be drawn.

1. Success in education is helpful for attainments in other spheres of life. It is a source of a socially useful activity and of happiness in life. As a motivational drive, success leads to the development of human ability. In education it contributes to the formation of intellectual, volitional, social, and many other abilities.
2. When success in education is brought within the reach of less privileged social groups, it may help to diminish social inequality, to narrow the distance between various social groups, and to increase mutual understanding between these groups, hence to increased social integration.
3. Competitions are a good occasion for pupils to develop their abilities, to compare their capacities with pupils from other schools and places, and to learn. The competitions are a form of out-of-school activities for pupils grouped homogeneously with regard to ability and interests. A positive effect on the development of abilities and a contribution to social equality are to be expected when competitions are held often and systematically. This effect would be the most significant for pupils from different local background.
4. Participants in the competitions received a training in problem solving and learned to react to difficulties. Thus it is probable that participation contributes to success in secondary and higher education, as well as in the future occupational career, even if participation does not bring immediate visible profit. Further research is needed to prove this assumption.
5. Competitions are an opportunity of gaining prestige for pupils who are not among the top at school, but have profound knowledge in a certain field.
6. The finding that children of employees - especially of teachers - were overrepresented at the competitions, compared to children of farmers or manual workers, is evidence of difficulties in overcoming social inequality in socialist countries, which took equality and social justice as the foundation of their whole structure.

7. Analysis of the relation between some characteristics of the family and the chances of success at the competitions showed a negative relation with family-size, and a positive one with the presence of some learning facilities. This finding must be interpreted as showing that failure at the competitions depends on social factors, rather than on biological ones.
8. Leveling of the chances of success in education among the various social groups is a long-term process that requires transformations throughout the entire social structure.

In countries where the basic needs of the whole population are met, it is already possible to bring success in education during a person's life time within everyone's reach. This is still a matter of the far future in countries where the provision for basic material needs of the population is very unequal, or where the poorest members of the society need to devote all their time and energy in providing a livelihood. Nevertheless, improvement of the chances of success in education among less privileged social groups, and prolongation of these chances throughout a person's lifetime is necessary, both in rich and in poor countries.

Poor countries need to educate specialists to make production meet the increasing quality standards of the rich countries. When inhabitants of the rich countries want to maintain their prestige under such conditions, they must also increase their knowledge, because they make contacts with specialists from poor countries, whether as managers, tourists, or consumers.

The creation and improvement of the chances of success in education among the socially less privileged might contribute to social progress. Among other things, such progress may be achieved by the proper use of all natural resources, including mental abilities.

XX. SAMENVATTING

De onderhavige studie behandelt de vraag wat de betekenis is van succes in het onderwijs, zowel voor degene die onderwijs volgt, als voor de samenleving als geheel. Daartoe wordt de invloed van enkele psychische, sociale en pedagogische factoren op dit succes onderzocht. Deze thema's worden geïllustreerd aan de hand van een empirisch onderzoek onder de finalisten van de provinciale competities in taal en rekenen, die in 1976 in Polen werden gehouden.

De auteur gaat ervan uit dat het gunstig is voor de sociale ontwikkeling van een land, wanneer zoveel mogelijk mensen de gelegenheid wordt gegeven hun aspiraties in het onderwijs te verwezenlijken. Het zou een verlies voor de samenleving zijn als de toegang tot de intellectuele elite zou worden beperkt, omdat dit gewoonlijk samen gaat met een beperking van de ontwikkeling van één van de grootste hulpbronnen van de samenleving: de menselijke begaafdheid.

Met 'succes' worden hier iemands verworvenheden bedoeld die - in vergelijking tot verworvenheden van anderen onder de gegeven sociaal-historische omstandigheden - het grootst zijn en die leiden tot een verbetering van de sociale positie van de betrokkene(n).

Alleen individuele verworvenheden die worden erkend door veel deskundigen op het betrokken gebied, worden in aanmerking genomen. Voorwaarden voor succes in het onderwijs zullen worden besproken tegen de achtergrond van successen van anderen in dezelfde sociale groep en van personen van verschillende sociale afkomst.

Het bereiken van de finales van de competities in schoolvakken en het behalen van een hoge score op die finales, kan als een succes worden beschouwd, ongeacht de waardering voor een dergelijke prestatie in het gezin of het milieu van de leerling.

Succes houdt zowel het proces als het resultaat in van een streven naar een complex doel. De grootte van een success is aan de ene kant gerelateerd aan de inspanningen die de betrokkene(n) zich getroostte(n) vergeleken met die van anderen. Anderzijds is de grootte van het succes afhankelijk van de complexiteit van het doel.

Succes is niet de activiteit zelf, of een tussentijdse

verworvenheid op weg naar het uiteindelijke doel. Daarom wordt iemand die het gestelde doel niet, of slechts ten dele bereikte, niet geacht een succes te hebben behaald, ook al spande hij zich tot het uiterste in, tenzij het gerealiseerde deel dusdanig complex en moeilijk is, dat het aan de definitie van succes voldoet.

De sociale en historische omstandigheden zijn van belang omdat een gegeven verworvenheid niet altijd en overal erkenning vindt. Verworvenheden in het onderwijs kunnen in sommige landen een belangrijke bijdrage leveren aan persoonlijk economisch succes, terwijl ze in andere landen soms geen effect hebben.

In deze studie wordt aangenomen, dat economisch hoog ontwikkelde landen in staat zijn de inwoners gedurende hun hele leven gelegenheid te bieden iets te bereiken in het onderwijs. Aldus zou succes in het onderwijs de basis kunnen leggen voor verder succes op dit terrein en tevens kunnen leiden tot althans enige verbetering in de economische situatie en het prestige van de betrokkene.

Ook hier moet worden gewezen op de betekenis van het sociaal politieke stelsel. In sommige stelsels vormen verworvenheden in het onderwijs een waarborg die belet dat de betrokkene onderaan de materiële (of enige andere) hiërarchie belandt. In andere stelsels biedt het bereiken van een hoog opleidingsniveau daar geen garantie voor.

Het is de bedoeling van deze studie te wijzen op factoren die uitzonderlijk succes in het onderwijs bepalen. Hierdoor kan de aandacht van beleidsvoerders worden gevestigd op zulke factoren die van belang zijn voor de vergroting van de kansen op succes in het onderwijs, in het bijzonder van sociaal minder bevoorrechte groepen.

Deze determinanten worden besproken op basis van een empirisch onderzoek onder de finalisten van competities in schoolvakken in Polen, een land met ruim veertig jaar ervaring met de opbouw van het socialisme - een systeem dat gelijkheid en rechtvaardigheid postuleert. De verwachting is dat dit onderzoek ook voor andere sociale systemen een voorbeeld kan geven voor een beleid gericht op het bevorderen van de vervulling van studie aspiraties onder de bevolking, in het bijzonder onder minder bevoorrechte sociale groeperingen.

Het boek bestaat uit twee delen. Het eerste is een theoretische studie naar determinanten van succes in het onderwijs. Het geeft een overzicht van onderzoek op dit gebied, met name naar determinanten van uitzonderlijk succes in het Poolse onderwijssysteem. Dit deel bevat tevens een beschrijving van enkele relevante ontwikkelingen in het Poolse basisonderwijs gedurende de zeventiger jaren en een bespreking van competities in schoolvakken als methode om begaafdheden van leerlingen te ontwikkelen.

Deel twee is het verslag van empirisch onderzoek naar de competities in taal en rekenen voor leerlingen in de hoogste klassen van het Poolse basisonderwijs, die in 1976/'77 werden gehouden.

Doel van dit onderzoek was het verkrijgen van informatie over de invloed van sociale, pedagogische en psychologische factoren op de kansen van leerlingen om de (provinciale) finale te bereiken en de competitie te winnen.

De gegevens werden verkregen van 4.995 finalisten in heel Polen, 372 deelnemers aan (regionale) halve finales, 9.100 klasgenoten van finalisten in de middelbare school en meer dan 2.000 onderwijzers, leraren en organisatoren van de competities.

Het boek omvat 19 hoofdstukken. De inhoud zal hier worden samengevat.

1. Inleiding tot de studie en uiteenzetting van het thema. Enige overwegingen rond de vraag of het de voorkeur verdient een goed opgeleide elite te vormen, een meerderheid van de bevolking hoog op te leiden, dan wel de hele bevolking zo goed mogelijk onderwijs te bieden.
2. Definitie van maatschappelijk succes en van succes in het onderwijs als een bijzondere vorm van maatschappelijk succes. Presentatie van de opvattingen van verscheidene auteurs over dit thema en bespreking van bevindingen uit eerder onderzoek.
3. Verbanden tussen begaafdheden en succes. Tentatieve definitie en typologie van begaafdheid. Bespreking van studies naar determinanten van begaafdheid. Enige opmerkingen over het meten van intellectuele en andere begaafdheden met behulp van intelligentietests.
4. Kritische bespreking van problemen rond sociaal egalitarisme in relatie tot succes in het onderwijs.

5. Bespreking van het vraagstuk van de vorming en ontwikkeling van begaafdheden in de school. Leidraad voor deze bespreking is een kritische presentatie van principes voor de allocatie van leerlingen, gelet op hun begaafdheid.
6. Presentatie van enige informatie over het Poolse onderwijs systeem ten tijde van het empirisch onderzoek; een periode van ingrijpende hervormingen. De gegevens betreffen het netwerk van scholen en de materiële voorzieningen. Voorts wordt een overzicht gegeven van buitenschoolse activiteiten voor leerlingen.
7. Bespreking van een bijzondere vorm van zulke buitenschoolse activiteiten, die van groot belang is voor het empirische deel van de studie: de competities in schoolvakken.
8. Inleiding tot het empirische onderzoek. Formulering van de probleemstelling en hypothesen. Uiteenzetting van de methode van onderzoek en van de gebruikte technieken. Informatie over het tijdschema van het onderzoek, de populatie en over de steekproeven.
9. Bevindingen met betrekking tot de competities in de Poolse taal en rekenen voor leerlingen in het basisonderwijs, zoals die in 1976/'77 werden gehouden. De belangrijkste thema's van dit hoofdstuk zijn: de belangstelling voor de competities, selectie, scores en de organisatie van de competities.
10. Resultaten van de analyses van het verband tussen kenmerken van de woonplaats van de deelnemers en hun kansen op succes bij de competities.
11. Bevindingen met betrekking tot het verband tussen kenmerken van het gezin van de deelnemers en hun kansen op succes bij de competities. Tevens worden onderlinge verbanden tussen het beroep van de ouders, hun opleiding, de woonplaats van het gezin en de kansen op success bij de finales besproken.
12. Beschrijving van kenmerken van de levenshouding van de finalisten in samenhang met hun kansen op succes bij de finales.
13. Karakteristiek van de finalisten. Bespreking van relaties tussen de scores op de finales enerzijds en geslacht, schoolcijfers en diverse persoonlijke kenmerken (die de finalisten naar het oordeel van hun onderwijzers hebben) anderzijds.

14. Verbanden tussen persoonlijke en professionele kenmerken van de mentor enerzijds en de scores van hun leerlingen op de finales anderzijds.
15. Beschrijving van de scholen die de finalisten bezochten, met name van het aantal leerlingen, de materiële voorzieningen en de organisatie van het onderwijs. Bevindingen met betrekking tot het verband tussen deze school-kenmerken en de kansen van de leerlingen op succes bij de competities.
16. Beschrijving van factoren die de belangstelling van de finalisten voor het onderwerp van de competitie opwekten, die hen bewogen deel te nemen en van de hulp die de finalisten kregen toen zij zich voorbereidden op de competitie. Verband tussen deze factoren en de scores op de finales.
17. Behandeling van de vraag of de diverse factoren die bleken samen te hangen met succes bij de competities, eenzelfde invloed hebben op de kansen op succes in het secundair onderwijs. Evaluatie van de verdeling van de finalisten over de diverse vormen van voortgezet onderwijs. Vergelijking van de school-prestaties van finalisten in de eerste klas van de middelbare school met die van hun klasgenoten. Bespreking van de resultaten van een multivariate analyse waarbij de invloed van verscheidene factoren op de school-prestaties wordt onderzocht.
18. Samenvatting van belangrijke bevindingen van het empirische onderzoek.
19. Bespreking van de resultaten van het empirische onderzoek in relatie tot de theoretische overwegingen in het eerste deel. Conclusies en aanbevelingen voor het onderwijsbeleid.

REFERENCES

- ADAMSKI, Władysław W.: Social structure versus educational policy: Polish and European perspectives. Warszawa (IFiS PAN) 1980.
- ADLER, A.: Znajomość człowieka. Łódź (Jemiołowicz & Ewert) 1948.
- AGNOLI, J.: Sozialer Erfolg. In: W. Bensdorf (ed.): Wörterbuch der Soziologie. (1969) pp. 1004-1006.
- AHLERS, J.B. / PETERS, J. (eds.): Handboek basisonderwijs, 15. Deventer (Van Loghum Slaterus) 1987.
- ALBERT, Robert S. (ed.): Genius and eminence. The social psychology of creativity and exceptional achievement. Oxford etc. (Pergamon) 1983.
- ALBINSKI, M.: De onderwijzer en de cultuuroverdracht. Assen (Van Gorcum) 1959.
- ALBINSKI, M.: Achtergronden van studiekeuze. Eindhoven, 1964.
- ALBINSKI, M.: Survey-research. Een methode van sociaal-wetenschappelijk onderzoek. Utrecht / Antwerpen (Het Spectrum) 1967.
- ALBINSKI, M.: Maatschappelijke behoefte aan sociologen. Nijmegen, 1969.
- ALBINSKI, M.: Onderzoek en actie. Over de relatie tussen sociaal-wetenschappelijk onderzoek en menselijk handelen. Assen / Amsterdam (Van Gorcum) 1978.
- ALBINSKI, M.: Onderzoekstypen in de sociologie. Assen (Van Gorcum) 1981.
- ALBINSKI, M.: Informatisering in de maatschappij en in de maatschappijwetenschappen. Nijmegen (KUN) 1987.
- ALBINSKI, M. / VONDEREN - van STAVAREN, M.L. van-: Studiekeuze van eerstejaarsstudenten. Een interuniversitair onderzoek. Eindhoven, 1965.
- ALBINSKI, M. / VONDEREN - van STAVAREN, M.L. van-: Achtergronden van de studiekeuze bij werkstudenten. Eindhoven (TH) 1966.
- ALEXANDER, Patricia A. / MUIA, Joseph A.: Gifted education. A comprehensive roadmap. Rockville, Maryland / London (Aspen) 1982.
- ANASTASI, A. (ed.): Individual differences. New York, 1965.
- APPLE, W.N.: Ideology and curriculum. London 1979.
- APPLE, W.N. (ed.): Cultural and economic reproduction in education. London 1982.
- ARISTOTLE (Aristoteles): Polityka. Warszawa 1964.
- ARTEMIOWA, T.I.: Metodologiczeskij aspekt problemi sposobnostiej. Moskwa (Nauka) 1977.
- ASHER, J. William: Educational research and evaluation methods. Boston / Toronto (Little, Brown & Co.) 1976.
- ASPECTS - Aspects of human equality. New York 1956.
- BACON, F.: Nowa Atlantyda. Warszawa 1954.
- BAKER, H.J.: Introduction to exceptional children. New York (Macmillan) 1959.
- BANDURA, L.: Uczniowie zdolni i kierowanie ich kształceniem. Warszawa, 1974.
- BARGEL, Tino / MARKIEWICZ, Władysław / PEISERT, Hansgert: University graduates: study experience and social role: empirical findings of a comparative study in five European countries (FORM-Project). In: M. Nießen / J. Peschar (eds.): Comparative research on education (1982) pp. 55-78.
- BARNET, M. / PELNARD, J.: Bulletin de l'INOP, nr. 3, 1962.

- BAŚCIK, Stefan: Zagadnienia orientacji szkolnej. In: Kwartalnik Pedagogiczny (1964) nr. 1.
- BEEKENKAMP, G.G. / DRONKERS, J.: Rotterdam, Delft, Leiden. De plaats van het onderwijs in de recrutering van president-directeuren. In: J. Dronkers & F.N. Stokman (eds): Nederlandse elites in beeld (1984) pp. 85-100.
- BEHRMAN, Jere R. / HRUBEC, Zdenek / TAUBMAN, Paul / WALES, Terence: Socioeconomic success. A study of the effects of genetic endowments, family environment and schooling. Amsterdam etc. (North Holland) 1980.
- BEJNAROWICZ, J. / ZAKRZEWSKA, G.: Stan zdrowia uczniów klas I szkół podstawowych rok 1972/73. Warszawa (GUS) 1974.
- BELL, D.: The coming of post-industrial society. A venture in social forecasting. New York (Basic Books) 1970.
- BENEKE, Friedrich E.: Erziehungs und Unterrichtslehre. 1834.
- BENEKE, F.E.: Rukowodstwo k wospitaniju i učeniju. Vol. 1 Moskwa 1871.
- BENN, S.J. / PETERS, R.S.: Principles of political thought. New York 1964.
- BENSDORF, Wilhelm (ed.): Wörterbuch der Soziologie. Stuttgart (F. Enke) 1969.
- BERENDS, A.B. / DRONKERS, J. / GEVERS, J.K.M. / JONG-GIERVELD, J. de- (eds.): Sociologisch jaarboek 1985. Deventer (Van Loghum Slaterus / SISWO) 1985.
- BERNSTEIN, Basil: Class, codes and control. London (Routledge & Kegan Paul) 1971 (Vol. 1), 1973 (Vol. 2), 1975 (Vol. 3).
- BERNSTEIN, Basil: On pedagogic discours. In: Handbook of theory and research in sociology of education (1986).
- BERREMAN, G. (ed.) Social inequality. Comparative and developmental approaches. (Academic Press) 1981.
- BERTING, J.: Epiloog. In: J. Berting et al.: Sociale ongelijkheid (1986) pp. 100-109.
- BERTING, J. et al.: Sociale ongelijkheid: bijdragen aan een symposium georganiseerd bij het 25-jarig jubileum van SISWO. Muiderberg (Coutinho) 1986.
- BÊTEILLE, A. (ed.): Social inequality. Harmondsworth, Middlesex / New York (Penguin) 1978.
- BIAŁECKI, I.: Funkcjonowanie olimpiad matematycznych. Wrocław (Ossolineum) 1975.
- BIELICKI, T. / SZCZOTKA, H. / GÓRNY, S. / CHARZEWSKI, J.: Rozwarstwienie społeczne współczesnej ludności Polski. Analiza wysokości ciała poborowych urodzonych w 1957 r. In: Przegląd Antropologiczny, vol. 47 (1982) nr. 2.
- BILIK-BOCIAN, B.: Kształcenie uczniów zdolnych w wybranych szkołach podstawowych w Krakowie. In: Nowa Szkoła (1975) nr. 4.
- BLOOM, Benjamin S.: Stability and change in human characteristics. New York, 1964.
- BOIS-REYMOND, M. du- / WESSELINGH, A. (eds.): School en maatschappij. Sociologen over onderwijs en opvoeding. Groningen (Wolters-Noordhoff) 1981.
- BOROWICZ, R.: Idee równości i sprawiedliwości społecznej w rozważaniach o edukacji. In: Studia Socjologiczne (1985) No. 1 (96) pp. 173-188.
- BORZYM, I.: Uczniowieolni. Warszawa (PWN) 1979.
- BOWLES, Samuel: Unequal education and the reproduction of the social division of labor. In: J. Karabel & A.H. Halsey (eds.): Power and ideology in education (1977) pp. 137-153.
- BOWLES, S. / GINTIS, H.: Schooling in capitalist America. London 1976.

- BOXTEL, van- / MÖNKS, F.J. / ROELOFS / SANDERS: De identificatie van begaafde leerlingen in het voortgezet onderwijs en een beschrijving van hun situatie. Nijmegen (Hoogveld instituut / KUN) 1986.
- BRANDS, J. / EGAS, G. / KARSTEN, S. / WENDRICH, E.: Andere wijs over onderwijs: naar een materialistische onderwijssociologie. Nijmegen (LINK) 1977.
- BRANGER, J.D.C. / DODDE, N.L. / WIELEMANS, W. (eds.): Onderwijsbeleid in Nederland. Leuven / Amersfoort (Acco) 1984.
- BRUNAU, Jean: The role of psychological tests in the identification process. Utrecht (RUU) paper May 20, 1987.
- BRUNER, Jerome S.: The process of education. Cambridge 1961, 1962 (4th reprint).
- BRUNER, Jerome S.: Proces kształcenia. Warszawa 1964, 1965.
- BUDOHOWSKA, W. / WŁODARSKI, Z.: Psychologia uczenia się. Warszawa (PWN) 1977 (wyd. III).
- BURT, C.: Intelligence and fertility. The effects of the differential birth rate on inborn mental characteristics. London (Hamilton) 1946.
- BURT, C.: The gifted child. In: The Yearbook of Education (1962).
- BURT, C.: The differentiation of intellectual ability. In: A. Anastasi (ed.): Individual differences (1965).
- BURTT, H.E.: Psychologia stosowana. Warszawa (PWN) 1965.
- CHARZEWSKI, J.: Społeczne uwarunkowania rozwoju fizycznego dzieci warszawskich. Studia i Monografie AWF. Warszawa, 1981.
- CLASON, C.E.: Socialisering tot man en vrouw. Groningen (RUG) 1978.
- CLASON, C.E. / GROL, J.M.R. / MEIJER, K.: Wijze uilen of huismussen? De positie van vrouwen met een universitaire opleiding en Post Academisch Onderwijs. Groningen (VVAO) 1980.
- CLEMENTS BLACKBURN, A. / ERICKSON, D.B.: Predictable crises of the gifted student. In: Journal of Counseling and Development. Vol. 64 (1986) No. 9, pp. 552-555.
- COHEN, M. / NAGEL, Th. / SCANLON, Th. (eds.): Marx, justice and history. Princeton / Guildford (Princeton University Press) 1980.
- COLEMAN, James S.: Equality of educational opportunity. Washington, 1964, 1966.
- COLEMAN, James S.: What is meant by 'an equal educational opportunity'? In: Oxford Review of Education, Vol. 1 (1975) No. 1.
- COLEMAN, James S. / HOFFER, Thomas / KILGORE, Sally: High school achievement. Public, catholic, and private schools compared. 1980.
- COLEMAN, James S. / HOFFER, Thomas / KILGORE, Sally: Cognitive outcomes in public and private schools. In: Sociology of Education. Vol. 55 (1982) No. 2/3.
- COLLARIS, J.W.M. / KROPMAN, J.A.: Van jaar tot jaar. Tweede fase: de wijze waarop het secundair dagonderwijs doorlopen is, de eerste keuze na het verlaten daarvan. Nijmegen (ITS) 1978.
- COSIN, B.R. (ed.): Education: Structure and society. Harmondsworth, Middlesex / New York (Penguin) 1977.
- CRAECKER, R. de-: Les enfants intellectuellement doués. Paris (PUF) 1951.

- CREMERS, W.J.G.: De arbeidssituatie van vrouwen in Polen. Groningen (SI-RUG) 1980.
- CREMERS, W.J.G. / IJZERMAN, Th.J.: De beroepsperspectieven van sociologen in Nederland. In: Mens en Maatschappij. Vol. 60 (1985) No. 1, pp. 79-90.
- CZAPÓW, Cz.: Wychowanie resocjalizujące. Warszawa (PWN) 1978.
- CZARNIAWSKA, Barbara: Kształcenie uzdolnionych w szkolnictwie amerykańskim. In: Nowa Szkoła (1973) No. 6.
- CZERNIGOWSKI, W.N.: Metodiki izuczenija tipologiczeskich osobiennostiej wysszej nierwnoj diejatielnosti ziwotnych. Moskwa / Leningrad, 1964.
- CZERNIGOWSKI, W.N.: Rezerwy mózgu są niewykorzystane. In: Kraj Rad (1971) No. 4.
- ĆWIOK, E.: O klasy dla dzieci i młodzieży uzdolnionej. In: Wychowanie (1973) No. 20/21.
- DAMROSZ, Jerzy: Determinants of regional divisions. Cultural divisions and their relation with administrative and economic divisions. Paper for the 10-th European Congress for Rural Sociology, Cordoba. Warsaw 1979.
- DARWIN, CHARLES R.: On the origin of species by means of natural selection. 1859.
- DAVIS, F.B.: The interpretation of IQ derived from 1937 revision of the Stanford-Binet scales. In: Journal of Psychology (1940) No. 24.
- DAWID, J. WŁ.: O duszy nauczycielstwa. In: Ruch Pedagogiczny (1912) p. 20.
- DISNEY, Walt: The magic grinder. 1978.
- DODDE, N.L.: Het Nederlandse onderwijs verandert. Ontwikkelingen sinds 1800. Muiderberg (Coutinho) 1983.
- DRONKERS, J.: Changable variables of a school career. An application of the Wisconsin model to Dutch primary and secondary education. Paper for the 9-th World Congress of Sociology, Uppsala. Amsterdam 1978.
- DRONKERS, J.: Mythen over elites. De rol van het onderwijs bij de recrutering van directeurs van grote bedrijven (1). In: Sociologisch Tijdschrift. Vol. 9 (1983) pp. 606-646.
- DRONKERS, Jaap / JONG, Uilke de-: Jencks en Fagerlind in a Dutch way. A report on research on the relationship between social background, intelligence, education, occupation and income in the Netherlands. In: Social Science Information. Vol. 18 (1979) No. 4/5, pp. 761-781.
- DRONKERS, J. / JONG, U. de- / SARIS, W.E.: Veranderingen in de schoolloopbanen tussen 1965 en 1977. Ontwikkelingen in de Nederlandse samenleving en haar onderwijs. In: Mens en Maatschappij. Vol. 57 (1982) No. 1.
- DRONKERS, J. / SCHIJF, H.: Buurten, scholen en ongelijke onderwijskansen. In: A.B. Berends et al. (eds.): Sociologisch jaarboek 1985 (1985) pp. 163-178.
- DRONKERS, J. / STOKMAN, F.N. (eds): Nederlandse elites in beeld. Deventer (Van Loghum Slaterus) 1984.
- DUBROWINA, I.W.: O sootrzoszenii obszczich i specyficznych umstwiennych sposobnostiej u młodszych szkolników. In: Materiały IV Wsiesojuznowo Sjezda Obszczestwa Psychologów (1971).
- DUDINK, Ad: Jong studeren 1. Apeldoorn (Stenvert) s.a.
- DURKHEIM, Emile: Le suicide. Paris (PUF) 1969.
- DURKHEIM, Emile: De la division du travail social. Paris (PUF) 1978.
- EDINGTON, Everett D.: Rural education: key policy issues. Compact/Centerfold, fall 1980, pp. C-1 - C-4.

- EDINGTON, Everett D.: Should public schools bring about change in society? Educational change a prerequisite. In: Educational Considerations. Vol. 8 (1981) No. 2, pp. 25 - 30.
- EDINGTON, Everett D. / HAYS, Leonard: Difference in family size and marriage age expectation and aspirations of Anglo, Mexican American and Native American rural youth in New Mexico. In: Adolescence. Vol. 13 (1978) No. 51, pp. 394 - 400.
- EDINGTON, Everett D. / OLSON, Mary / BILLS, David: Rural youth and adults' knowledge of governmental functions. In: Adolescence. Vol. 15 (1980) No. 58, pp. 424 - 428.
- ELLEMERS, Jo E.: Sociologie en de studie van acculturatieverschijnselen: convergentie en disciplines. Amsterdam (Sociografisch Instituut UvA) s.a.
- EYKEN, Willem van der- (ed.): Education, the child and society. A documentary history 1900-1973. Harmondsworth, Middlesex / New York (Penguin) 1973.
- FEENSTRA, L. / FOCK, R.O. (eds.): De creatieve factor. Opstellen over creativiteit. Meppel / Amsterdam (Boom) 1987.
- FILIPPOW, F.R.: Wsioobsczeje sregnieje obrazowanie w SSSR. Moskwa (Mysl) 1976.
- FILIPPOW, F.R. / KOZIREW, L.N. / ZLJUZIN, D.I. (eds.): Obrazowanie i socjalnaja struktura. Moskwa (ISM-AN) 1976.
- FLORIAN - Florian Znaniecki i jego rola w socjologii. Poznań (UAM) 1975.
- FOWLER, W.: Rola oddziaływań zewnętrznych w uczeniu się wpływającym na rozwój we wczesnym dzieciństwie. In: Psychologia Wychowawcza (1967) No. 3-4.
- FRAMHEIN, Gerhild / MARKIEWICZ, Władysław / PEISERT, Hansgert: Students and graduates: their training at university and their conception of life: introductory remarks on the FORM-project. In: M. Nießen / J. Peschar (eds.): Comparative research on education (1982) pp. 51-54.
- FREEMAN, J.: Gifted children. Their identification and development in a social context. Lancaster 1979.
- FREEMAN, J.: Gifted children ten years on. Research on their development in a social context. Utrecht (RUU) paper May 20, 1987.
- FREIRE, P.: Pedagogy of the oppressed. Transl. M. Bergman Ramos. Harmondsworth, Middlesex / New York (Penguin) 1980.
- FRENCH, I.L.: Dzieci szczególnie uzdolnione. Badania i metody kształcenia. W: N.G. Haring / R.L. Schiefelbusch (eds.): Metody pedagogiki specjalnej. (1973).
- FURNEAUX, W.D.: The chosen few. An examination of some aspects of university selection in Britain. London etc. (Oxford University Press) 1961.
- GADOUREK, I.: ECTA; Goodmans programma voor analyse van kwalitatieve gegevens. Groningen (SI-RUG) 1976.
- GADOUREK, I.: Social change as redefinition of roles. A study of structural and causal relationships in the Netherlands of the 'seventies'. Assen (van Gorcum) 1982.
- GAK, G.M.: Dialiektika kollektiwnosti i individualnosti. Moskwa, 1967.
- GALLAGHER, James J.: Teaching the gifted child. Boston etc. (Allyn & Bacon) 1975 (second edition).
- GALTON, F.: Hereditary Genius. An Inquiry into its laws and consequences. London (Macmillan) 1869, 1892, (Julian Friedman) 1979, New York (Horizon) 1952.
- GAUGUELIN, M.: La psychologie au XX siècle. Paris, 1963.

- GERSTMANN, S.: Psychologia. Warszawa, 1969.
- GIEROWSKI, J.A. (ed.): Dzieje kultury politycznej w Polsce. Warszawa 1977.
- GIRARD, Alain: La réussite sociale. Paris, 1971.
- GOŁĘBIEWSKI, B. (ed.): Kariera. Warszawa, 1975.
- GONDZIK, E.: Co rozumieć przez zdolność, uzdolnienia, talent. In: Wychowanie (1972) No. 20/21.
- GONDZIK, E.: Karriery szkolne uczniów zdolnych. Warszawa (WSiP) 1976.
- GOODMAN, Leo A. / FAY, Robert: ECTA Program. Description for users. Chicago (Dept. of Statistics, University of Ill.)
- GORISZEWSKI, W.: Przegląd niektórych pozycji literatury pedagogicznej omawiającej problem uczniów wybitnie uzdolnionych. In: Chowania (1967) No. 1.
- GÖRTZEN, René: Wie is Janusz Korczak? In: JSW. Vol. 6 (1986/87) No. 9, pp. 4-10.
- GRZYWAK-KACZYŃSKA, M.: Powodzenie szkolne a inteligencja. Warszawa (Nasza Księgarnia) 1935.
- GUILFORD, J.P.: The nature of human intelligence. New York etc. (McGraw-Hill) 1967.
- GULDEMOND, H. / MEIJNEN, G.W.: Hoogbegaafden en het voortgezet onderwijs. In: Mönks F. / Span P.: Hoogbegaafden in de samenleving (1985) pp. 158 - 189.
- HALLAHAN, D. / KAUFMAN, J.: Exceptional children. Introduction to special education. Englewood Cliffs (Prentice Hall) 1982, 1986.
- HANDWÖRTERBUCH der Sozialwissenschaften. Tübingen / Göttingen 1961.
- HARING, N.G. / SCHIEFELBUSCH, R.L. (eds.): Metody pedagogiki specjalnej. Warszawa (PWN) 1973.
- HAUSER, Robert M. / FEATHERMAN, David L.: The process of stratification. Trends and analyses. New York, 1977.
- HEBB, D.O.: The organization of behavior. A neuro-physiological theory. New York (Wiley) 1949.
- HEEK, F. van-: Schoolgeschiktheid, intelligentie en milieufactoren bij doorstroming van l.o. naar v.w.o. (v.h.m.o.). Lecture at Amsterdam (Nederlandse Onderwijzersvereniging 1964).
- HEEK, F. van- et al.: Het verborgen talent. Milieu, schoolkeuze en schoolgeschiktheid. Leiden (Stenfert Kroese) 1968 / Meppel (Boom) 1972, 1976.
- HELVETIUS, Claude A.: De l'homme. 1772.
- HEWITT, D.: The Oxford child health survey. A study of the influence of social and genetic factors on infant weight. In: Human Biology (1962) No. 24.
- HILDRETH, G.H.: Introduction to the gifted. New York, 1966.
- HILGARDER, E.R.: Wprowadzenie do psychologii. Warszawa (PWN) 1962, 1967.
- HOLLINGSHEAD, A.B. / REDLICH, F.C.: Social class and mental illness. A community study. New York (Wiley) 1958.
- HOLLINGWORTH, L.S.: Children above 180 IQ. New York, 1942.
- HORNOWSKI, R.: Rozwój inteligencji i uzdolnień specjalnych. Warszawa (Biblioteka Psychologii Rozwojowej, WSiP) 1978.
- HOWLEY, A. et al.: Teaching gifted children: principles and strategies. Boston (Little Brown) 1986.
- HOYLE, E. / WILKS, J.: Children and their education. London, 1975.
- HUDDEN, F.A. / LYTTON, H.: Primary education and divergent thinking abilities. In: The British Journal of Educational Psychology (1971) No. 1.

- HURLOCK, E.: Rozwój dziecka. Warszawa (PWN) 1961.
- HUSAMI, Ziyad I.: Marx on distributive justice. In: M. Cohen, Th. Nagel & Th. Scanlon (eds.): Marx, justice and history (1980) pp. 42-49.
- HUSÉN, Torsten: Merytokracja w kształcącym się społeczeństwie. (Young: The Rise of the Meritocracy). In: Kwartalnik Pedagogiczny (1970) No. 3.
- IGNAR-GOLIMOWSKA, B.: Odchylenia w stanie zdrowia uczniów kończących szkołę podstawową. In: Wychowanie Fizyczne i Higieniczne (1982) No. 4 (272).
- IJZERMAN, Th.J.: Groepsdynamica: een nieuw gebied van de sociale wetenschap. In: Sociologische Gids. Vol. 1 (1953) No. 1.
- IJZERMAN, Th.J.: Sociale stratificatie en sociale mobiliteit. In: Mens en Maatschappij. Vol. 29 (1954) No. 1.
- IJZERMAN, Th.J.: Structuurverschijnselen van de plattelandssamenleving. In: Sociologische Gids. Vol. 6 (1959) No. 6.
- IJZERMAN, Th.J.: Beroepsaanzien en arbeidsvoldoening met betrekking tot de arbeidsvoorziening in de Twents-Achterhoekse textielindustrie. Leiden (Stenfert Kroese) 1959.
- IJZERMAN, Th.J.: Het talentenvraagstuk. Groningen (Wolters, series: Informatie over opvoeding en onderwijs, 5) 1968, 1970.
- IJZERMAN, Th.J.: Onderwijs en ongelijkheid: de allocatiefunctie van het onderwijs. In: J.L. Peschar / A.A. Wesselingh (eds.): Onderwijssociologie (1985) pp. 309-342.
- IJZERMAN, Th.J.: Omgaan met ongelijkheid. Lisse (Swets & Zeitlinger) 1986.
- INTELLIGENCE - The Intelligence of University Students. Pilot Papers. Vol. II (1947) nr. 1.
- IWANOWSKI, I.: Poziom wykształcenia nauczycieli i wychowawców. In: Nauczyciel i Wychowanie (1972) No. 4.
- JACOBSEN, Hans-Adolf / SCHWEITZER, Carl-Christoph / SUŁEK, Jerzy / TRZECIAKOWSKI, Lech (eds.): Bundesrepublik Deutschland, Volksrepublik Polen: Bilanz der Beziehungen, Probleme und Perspektiven ihrer Normalisierung. Frankfurt am Main (Metzner) / Warszawa (Polski Instytut Spraw Międzynarodowych) 1979.
- JANOWSKI, Andrzej: Interakcje między nauczycielem a uczniami. In: Kwartalnik Pedagogiczny (1979) No. 1, pp. 47-68.
- JANOWSKI, Andrzej: Psychologia społeczna a zagadnienia wychowania. Wrocław etc. (Ossolineum) 1980.
- JANSEN SCHOONHOVEN, A.J. / LINDEN, J.L. van der- / SPAN, P. / SUSANTE, M. van-: Hoogbegaafde leerlingen. Vol. 1. 's Gravenhage (SVO) 1986.
- JANSEN SCHOONHOVEN, A.J. / LINDEN, J.L. van der- / POSTHUMA de BOER, M. / SPAN, P. / SUSANTE, M. van-: Hoogbegaafde leerlingen. Vol. 2. 's Gravenhage (SVO) 1987.
- JASICKI, J. (ed.): Zagadnienia nieprzystosowania społecznego i przestępczości. Warszawa (Ossolineum) 1978.
- JENSEN, Arthur R.: The price of inequality. In: Oxford Review of Education. Vol. 1 (1975) No. 1, pp. 59-71.
- JENSEN, Arthur R.: Nonrandom mating. In: R.T. Osborne / C. Noble / N. Weyl (eds.): Human variation (1978).
- JONG, Mart-Jan de-: Herkomst, kennis en kansen. Allochtone en autochtone leerlingen tijdens de overgang van basis- naar voortgezet onderwijs. Lisse (Swets & Zeitlinger) 1987.
- KABANIS, P.J.: Rapports du physique et du moral de l'homme. 1805.

- KARABEL, J. / HALSEY, A.H. (eds.): Power and ideology in education. New York (Oxford University Press) 1977.
- KANSELAAR, G. / LINDEN, J.L. van der- / PENNING, A.P. (eds.): Begaafdheid: onderkenning en beïnvloeding. Individual differences in giftedness: Identification and education. Leuven / Amersfoort (Acco) 1988.
- KAZAMIAS, M. (ed.): Herbert Spencer: On education. New York (Teachers College, Columbia University Press) 1966.
- KEMENADE, J.A. van- (ed.): Onderwijs: Bestel en beleid. Groningen (Wolters-Noordhoff) 1981.
- KEMENADE, J.A. van- / JUNGBLUTH, P.L.M. / RITZEN, J.M.M.: Onderwijs en samenleving. In: J.A. van Kemenade (ed.): Onderwijs (1981) pp. 96-242.
- KERR, B.A. / MILLER, J.: Introduction. In: Journal of Counseling and Development. Vol. 64 (1986) No. 9 (special issue on counseling the gifted and talented) p. 547.
- KEPIŃSKI, Antoni: Schizofrenia. Warszawa (PZWL) 1981.
- KEPIŃSKI, A. / SUSŁOWSKA, M.: Zagadnienie genetyki w psychologii i psychiatrii. In: Materiały do nauczania psychologii. Series IV, Vol 3. Warszawa (PWN) 1969.
- KHATENA, Joe: Educational psychology of the gifted. New York etc. (John Wiley & Sons) 1982.
- KLEIJER, H. et al. (eds.): Onderwijs, kwalifikatie en arbeidsmarkt. Nijmegen (LINK) 1981.
- KOHN, Melvin L.: Class and conformity: a study in values. Homewood, Ill. / London / Georgetown (Dorsey) 1969. (a)
- KOHN, Melvin L.: Class, occupation, and orientation. In: American Sociological Review. Vol. 34 (1969) No. 5, pp. 659-678. (b)
- KOMEŃSKI, J.A.: Wielka dydaktyka. Wrocław (Ossolineum) 1956.
- KOMITET badania Polonii zagranicznej, Polska Akademia Nauk: Stan i potrzeby badań nad zbiorowościami Polonijnymi. Wrocław (Ossolineum) 1976.
- KON, I.S.: Socjologija licznosti. Moskwa, 1967.
- KOSTOWSKA, Elżbieta: Idea równości społecznej. Warszawa (Wiedza Powszechna) 1983.
- KOWALSKI, Tadeusz: Determinanty sukcesów olimpijskich młodzieży szkolnej. In: Kwartalnik Pedagogiczny (1978) No. 3.
- KOWECKI, J. (ed.): Konstytucja 3 Maja 1791: statut Zgromadzenia Przyjaciół Konstytucji. Warszawa (PWN) 1981.
- KOZAKIEWICZ, Mikołaj: Kariery płoćkie. Szkolnictwo a uprzemysłowienie. Warszawa (Nasza Księgarnia) 1971. (a)
- KOZAKIEWICZ, M.: Oświatowe szanse 'dzieci zdolnych' ze wsi płoćkiej. (Zeszyty Badań Rejonów Uprzemysłowionych, nr. 47) Warszawa (KBRU i IRWiR PAN) 1971. (b)
- KOZAKIEWICZ, M.: Sytuacja dzieci zdolnych na wsi płoćkiej. (Zeszyty Badań Rejonów Uprzemysłowionych, nr. 42) Warszawa (KBRU i IRWiR PAN) 1971. (c)
- KOZAKIEWICZ, M.: Bariery awansu poprzez wykształcenie. Warszawa (CRZZ) 1973.
- KOZAKIEWICZ, M.: Zróżnicowanie dostępu młodzieży do kształcenia w roku 1970. Warszawa (IRWiR-PAN) 1975.
- KRAWCEWICZ, Stanisław: Zawód nauczyciela. Z badań nad doskonaleniem i samokształceniem. Warszawa (KiW) 1970.
- KRETSCHMER, E.: Ludzie genialni. Warszawa (Dzwon) 1934.
- KRIESBERG, L.: Social inequality. New Jersey 1979.
- KRUITMAN, B. / NOORDMAN, J. / ROOY, P. de- (eds.): Geschiedenis van opvoeding en onderwijs. Inleiding, bronnen, onderzoek. Nijmegen (SUN) 1982 (Sunschrift 198).

- KRUTIECKIJ, W.A.: K woprosu o prirode sposobnostiej. In: *Materialy konfierencjii po problemie sposobnostiej* (1970).
- KUPISIEWICZ, Czesław: *Podstawy dydaktyki ogólnej*. Warszawa (PWN) 1982.
- KWIECIAŃSKI, Z.: Problematyka odpadu szkolnego we wsi peryferijnej. In: *Kwartalnik Pedagogiczny* (1970) No. 3. (a).
- KWIECIAŃSKI, Z.: Przyczyny odpadu w szkole wiejskiej. In: *Ruch Pedagogiczny* (1970) No. 12. (b). -
- KWIECIAŃSKI, Z.: Poziom wiedzy a struktura społeczna młodzieży w rejonie plockim. In: *Nowa Szkoła* (1974) No. 4.
- KWIECIAŃSKI, Z.: Odpad szkolny na wsi. (Zeszyty Badań Rejonów Uprzemysłowionych, nr. 53) Warszawa (KBRU i IRWiR PAN) 1972.
- KWIECIAŃSKI, Z.: Losy szkolne i poziom umysłowy młodzieży a zróżnicowanie społeczne. Warszawa (IRWiR-PAN) 1973.
- KWIECIAŃSKI, Z.: Środowisko a wyniki pracy szkoły. Warszawa (PWN / IRWiR-PAN) 1975.
- KWIECIAŃSKI, Z.: Położenie społeczne rodziny a wydatkowanie czasu przez uczniów szkół podstawowych. In: *Ruch Pedagogiczny* (1978) No. 4.
- LEERLINGENVERVOER - Het leerlingenvervoer bij het voortgezet onderwijs (gebaseerd op een onderzoek in Z.O.-Drenthe). Emmen, 1974.
- LEIBNITZ, Gottfried W.: *Nowe rozważania dotyczące rozumu ludzkiego*. Warszawa, 1955 (first edition 1765).
- LENDERS, J. / MAZELAND, H. / NIEUWSTADT, M. van -: *Taal, arbeidersklasse en ongelijkheid. Een kritiek op de theoretische en praktische vooronderstellingen van de sociolinguïstiek*. Amsterdam (Van Genneep) 1978.
- LENIN, W.I.: *Polnoje sobranije soczinienij*. Moskwa (Izd. Politiczeskoj Literatury) 1980-.
- LEONTIEW, A.N.: *Oczerki razwitij psichiki*. Moskwa, 1947.
- LESZCZYŃSKI, Stanisław (Stanisław I, Polish king 1704-04 and 1733-36): *Discours d'un Européen avec un insulaire du Royaume de Dumocala*. 1755.
- LEWOWICKI, Tadeusz: *Psychologiczne różnice indywidualne a osiągnięcia uczniów*. Warszawa (WSiP) 1977.
- LIPSET, S. / BENDIX, Z.: *Ruchliwość społeczna w społeczeństwach uprzemysłowionych*. Warszawa, 1964.
- LITIERAT, S.J.: *Problemy otbora i obuczenija w spiecjalizowanych fiziko-matematiczeskich szkolach pri gosuniversitetach*. Nowosybirsk (Nowosybirskij Pedagogiczeski Gosudarstwiennij Institut) 1972.
- LOCKE, John: *Myśli o wychowaniu*. Wrocław / Kraków (Ossolineum) 1959.
- LUNING-PRAK, J.: *Het begaafde kind*. 1936.
- ŁOPATKOWA, Maria: *Wychowanie domowe i szkolne w krytycznym świetle*. In: *Kwartalnik Pedagogiczny* (1984) No. 3.
- ŁUCZAK, Ewa: *Stan zdrowia i rozwój fizyczny młodzieży szkolnej (uczniowie kl. I warszawskich szkół średnich)*. Warszawa (Inst. Socjol. UW) 1985. Zespół Badań Socjologicznych nad Problemami Oświaty, Zeszyt 37.
- MAKER, C. June: *Curriculum development for the gifted*. Rockville / London (Aspen) 1982.
- MARJORIBANKS, Kelvin: *Families and their learning environments. An empirical analysis*. London / Boston / Menley, 1979.
- MARKIEWICZ, Władysław: *Pedagogika a socjologia*. Warszawa (PAN) 1968.

- MARKIEWICZ, Władysław: Propedeutyka nauki o społeczeństwie. Warszawa (PZWS) 1971.
- MARKIEWICZ, W.: Sociologia a służba społeczna. Poznań (Wyd. Poznańskie) 1972.
- MARKIEWICZ, Władysław: Ewolucja pozycji społeczno-zawodowej inteligencji w Polsce Ludowej. Warszawa (PAN) 1974.
- MARKIEWICZ, Władysław: Florian Znaniecki jako socjolog narodu. In: Florian Znaniecki i jego rola w socjologii (1975) pp. 103-108. (a)
- MARKIEWICZ, Władysław: Ziemie Zachodnie w świadomości społeczeństwa polskiego. In: Dzieje Najnowsze. Vol. 7 (1975) No. 4, pp. 45-52. (b)
- MARKIEWICZ, Władysław: Zależności wzajemne przeobrażeń Polonii i Polski. Kraków (UJ) 1975 (c).
- MARKIEWICZ, Władysław: Zależności wzajemne przeobrażeń Polonii i Polski. In: Komitet badania Polonii zagranicznej: Stan i potrzeby badań nad zbiorowościami polonijnymi (1976) pp. 22-32.
- MARKIEWICZ, Władysław: Die Tätigkeit der UNESCO-Schulbuchkommission der VR Polen und der Bundesrepublik Deutschland (1972-1976). In: H.-A. Jacobsen et. al. (eds.): Bundesrepublik Deutschland Volksrepublik Polen (1979) pp. 365-379.
- MARKIEWICZ, Władysław: Stan i poziom nauk społeczno-humanistycznych: uwagi wstępne. In: Nauka a rozwój kraju (1980) pp. 53-68. (a)
- MARKIEWICZ, Władysław: Transformations in the structure of Polish society (194-1979). In: The Review of the Polish Academy of Sciences (1980) No. 1-2, pp. 15-24. (b)
- MARKIEWICZ, Władysław: Refleksje Wietnamskie. (s.l. / s.a.) pp. 23-27.
- MARX, Karl: Oekonomisch-philosophische Manuskripte (1844). In: Marx-Engels Werke, Ergänzungsband - Schriften bis 1844 - erster Teil, pp. 465-568. Berlin (Dietz) 1968.
- MARX, Karl: Das Kapital. Kritik der politischen Oekonomie. Buch I: Der Produktionsprozeß des Kapitals. Berlin (Dietz) 1975.
- MARX (Marks), K.: Pisma wybrane. Człowiek i socjalizm. (Wstęp: I. Ładyka). Warszawa (PWN) 1979.
- MASLOW, A.H.: Motivation and personality. New York (Harper & Row) 1954.
- MASLOW, A.H.: Toward a psychology of being. New York (Van Nostrand) 1968.
- MASLOW, Abraham: The farther reaches of human nature. Middlesex etc. (Penguin Books) 1971, 1973.
- MATERIALY - Materiały konferencji po problemie sposobnościami. Moskwa (Instytut Obszcziej i Pedagogiczieskoj Psychologii APN-SSSR) 1970.
- MATERIALY - Materiały IV wsiesojuznowo sjezda obszczestwa psychologow. Tbilisi, 1971.
- MATTHIJSEN, M.A.J.M.: Klasse-onderwijs. Sociologie van het onderwijs. Deventer (Van Loghum Slaterus) 1975.
- MATTHIJSEN, M.A.J.M.: De elite en de mythe. Een sociologische analyse van strijd om onderwijsverandering. Deventer (Van Loghum Slaterus) 1975.
- MATTHIJSEN, M.A.J.M.: De ware aard van balen. Een studie van het motivatieprobleem. Groningen (Wolters Noordhoff) 1986.
- MATURZEWSKA, M. Psychologiczne warunki osiągnięć pianistycznych. Warszawa (Ossolineum) 1969.

- MAZUR, Barbara: Wartość prognostyczna uczestnictwa w finale olimpiad z zakresu nauk ścisłych. In: *Dydaktyka Szkoły Wyższej* (1973) No. 1.
- MCLELLAN, D.: Karl Marx. His life and thought. London/Basingstoke (MacMillan) 1979.
- MEESTER, Adriaan / LEEUW, Jan de-: Intelligentie, sociaal milieu en de schoolloopbaan. Leiden (FSW/RUL) 1983.
- MEESTERS, M. / DRONKERS, J. / SCHIJF, H.: Veranderende onderwijskansen? Een derde voorbeeld en afrondende conclusies. In: *Mens en Maatschappij*. Vol. 58 (1983) nr. 1.
- MEHLHORN, H.G. / URBAN, K. (eds.): *Begabungsentwicklung - weltweit*. Berlin (Deutscher Verlag der Wissenschaften) 1988.
- MEIJNEN, G.W.: Maatschappelijke achtergronden van intellectuele ontwikkeling. Groningen, 1977.
- MEIJNEN, G.W.: Schooltypen in het lager onderwijs en milieuspecifieke leerprestaties. In: *Mens en Maatschappij*. Vol. 55 (1980) No. 4.
- MEIJNEN, G.W.: Socialisering: taal, talent en geschiktheid. In: J.L. Peschar & A.A. Wesselingh: *Onderwijssociologie* (1985) pp. 161-184.
- MEIJNEN, G.W.: Ongelijke onderwijskansen en onderwijsbeleid. In: Th. Mensen & G.W. Meijnen: *Sociale stratificatie en onderwijs* (1986) pp. 89-100.
- MEIJNEN, G.W.: *Het rendement van cultureel kapitaal*. Amsterdam (UvA) 1988.
- MENSEN, Theo / MEIJNEN, Wim (eds.): *Sociale stratificatie en onderwijs*. Bundel aangeboden aan prof. dr. Th.J. IJzerman bij zijn afscheid als hoogleraar sociologie aan de Rijksuniversiteit Groningen. Lisse (Swets & Zeitlinger) 1986.
- MERWE, Caspar van de- (in collaboration with A.M. de Jong and J.M.P. Knapen): *Thesaurus of sociological research terminology*. Rotterdam (Rotterdam University Press) 1974.
- MODRZEWSKI, A. Frycz: *Commentariorum de Republica emendanda*. 1554.
- MODRZEWSKI, A. Frycz: *Dzieła wszystkie*. Warszawa 1953-.
- MOiW (Ministry of Education): *Informacja na temat olimpiad przedmiotowych*. Warszawa (MOiW) 1974.
- MOiW: *Informacja na temat olimpiad przedmiotowych*. Warszawa (MOiW) 1977.
- MÖNKS, Franz J.: Hoogbegaafde kinderen: een benadeelde groep? In: *Pedagogische Studiën*. Vol. 60 (1983) pp. 195-208.
- MÖNKS, F.J.: Einzelfallanalyse in der Hochbegabungsdiagnostik. In: *Zeitschrift für Differentielle und Diagnostische Psychologie*. Vol. 8 (1987) No. 3, pp. 235-240.
- MÖNKS, F.J.: De rol van de sociale omgeving in de ontwikkeling van het hoogbegaafde kind. In: G. Kanselaar, J.L. van der Linden & A.P. Pennings (eds.): *Begaafdheid* (1988). (a)
- MÖNKS, F.J.: Hochbegabte in den Niederlanden: Forschung und Praxis. In: H.G. Mehlhorn & K. Urban (eds.): *Begabungsentwicklung - weltweit* (1988). (b)
- MÖNKS, F.J. / KNOERS, A.M.P.: *Entwicklungspsychologie*. Stuttgart (Kohlhammer) 1976.
- MÖNKS, F.J. / KNOERS, A.M.P.: *Ontwikkelingspsychologie*. Nijmegen (Dekker & van de Vegt) 1986.
- MÖNKS, F.J. / SPAN, P. (eds.): *Hoogbegaafden in de samenleving*. Nijmegen (Dekker & van de Vegt) 1985.

- MÖNKS, F.J. / YPENBURG, I.H.: Hoogbegaafde kinderen op de basisschool. In: J.B. Ahlers & J. Peters (eds.): Handboek basisonderwijs 15 (1987).
- MOORE, Linda P.: Does this mean my kid's a genius? How to identify, educate, motivate and live with the gifted child. New York / Scarborough, Ont. (New American Library) 1981.
- MÜLLER, K.N.: Zur Frage des Begabungsnachwuchses. Erlangen (Universität Erlangen) 1947.
- MUSZYŃSKI, Heliodor: Zarys teorii wychowania. Warszawa (PWN) 1976, 1977.
- NAKIELSKA, Zofia: Przyczyny strajków szkolnych w wybranych wsiach województwa Ostrołęckiego. Warszawa (IRWiR-PAN) 1973.
- NAKIELSKA, Zofia: Psychospołeczne wyznaczniki wybitnych zdolności. In: Wieś i Rolnictwo (1975) No. 3/4.
- NAKIELSKA, Zofia: Szkoły dla uczniów zdolnych przy uniwersytetach RFSRR. In: Wieś Współczesna (1978) No. 5.
- NAKIELSKA, Zofia: Z badań nad dziećmi zdolnymi - wzory życiowego sukcesu. In: Problemy studenckiego życia naukowego (1979) nr. 2.
- NAKIELSKA-CREMERS, Z.: Sukces kształceniowy w polskim i niderlandzkim systemach oświatowych. Amsterdam (1985).
- NAMYŚŁOWSKI, Jerzy: Dojazdy szkolne w Polsce jako problem badań interdyscyplinarnych. Bydgoszcz (WSP) 1978.
- NATIONAL Student Symposium on the Education of the Gifted and Talented: On being gifted. New York (Walker) 1978.
- NAUKA - Nauka a rozwój kraju. Wrocław (Ossolineum) 1980.
- NAWROCZYŃSKI, B.: Uczeń i klasa. Warszawa, 1923.
- NAZARETH, Luis (ed.): Deixem me passar! Orientacoes aos pais e professores de crianças sobredotadas. Porto (APCS / Colecao Educacao & Sobredotacao) 1987.
- NIEBEN, Manfred / PESCHAR, Jules L. (eds.): Comparative research on education: overview, strategy and applications in Eastern and Western Europe. Oxford etc. (Pergamon) / Budapest (Akadémiai Kiadó) 1982. (a)
- NIEBEN, Manfred / PESCHAR, Jules L. (eds.): International comparative research. Problems of theory, methodology and organisation in Eastern and Western Europe. Oxford etc. (Pergamon) 1982. (b)
- NIJHOFF, Piet: Pragmatisme en sociologie: Durkheim en Sorel als tegenspelers. In: Sociologisch Tijdschrift. pp. 92-124.
- NOWACZYK, Czesław: Kształcenie zdolności. Praca z dziećmi w zbiorczej szkole gminnej. Zielona Góra (WSP) 1982.
- NOWAK, Jerzy M.: Stosunki Wschód - Zachód w dziedzinie oświaty. In: Sprawy Międzynarodowe (1979) No. 12, pp. 25-38.
- OKOŃ, Wincenty: Słownik pedagogiczny. Warszawa (PWN) 1975.
- OKOŃ, Wincenty: Nauczanie problemowe we współczesnej szkole. Warszawa (WSiP) 1978.
- OKOŃ, Wincenty: Szkoła współczesna. Przemiany i tendencje rozwojowe. Warszawa (KiW) 1979.
- OSBORNE, R.T. / NOBLE, C. / WEYL, N. (eds.): Human variation. The biopsychology of age, race and sex. New York / San Francisco / London (Academic Press) 1978.
- PALONKA, Krystyna: Przestrzenne rozmieszczenie codziennych dojazdów uczniów do szkół podstawowych. Białystok (Paper d.d. 4-5 VI) 1977.
- PANEK, W.: Uczniowie szczególnie zdolni i utalentowani w opinii nauczycieli wychowawców na tle klasy szkolnej. Białystok (Filia UW) 1975. (a)

- PANEK, W.: Próba analizy uzdolnień matematycznych uczniów uznanych w szkole za szczególnie zdolnych. Białystok (Filia UW) 1975. (b)
- PANEK, W.: Zachowanie się szczególnie zdolnych uczniów w sytuacjach szkolnych. Białystok (Filia UW) 1977.
- PARK, R.E.: Human ecology. In: American Journal of Sociology (1936) No. 7.
- PARSONS, Talcott: The social system. Glencoe (The Free Press) 1951.
- PASSOW, A. Harry: Educational and instructional arrangements for gifted children: USA and Europe compared. In: G. Kanselaar, J.L. v.d. Linden & A. Pennings (eds.): Begaafdheid (1988) pp. 182-188.
- PENNINGS, A. / KANSELAAR, G. / LINDEN, J.L. van der- (eds.): Begaafdheid: onderkenning en beïnvloeding. Utrecht (RUU) 1988.
- PESCHAR, J.L.: Milieu, school, beroep. Groningen (Tjeenk Willink) 1975.
- PESCHAR, J.L. / WESSELINGH, A.A. (eds.): Onderwijssociologie, een inleiding. Groningen (Wolters-Noordhoff) 1985.
- PIAGET, Jean: Studia z psychologii dziecka. Warszawa (PWN) 1966.
- PIERON, H.: De l'activité de l'homme. Vol. 11. Paris, 1959.
- PIETER, J.: Społeczne i dziedziczne podłoże różnic indywidualnych. In: Myśl Współczesna (1948) No.5, vol II.
- PIETRASIŃSKI, Zbigniew: Myślenie twórcze. Warszawa (PZWS) 1969.
- PIETRASIŃSKI, Z.: Przygotowanie do aktywności twórczej. In: Studia Filozoficzne (1978) No. 5.
- PILCH, T.: Metodologia pedagogicznych badań środowiskowych. Wrocław (Ossolineum) 1971.
- PLAMENATZ, J.: Equality of opportunity. In: Aspects of human equality (1956).
- PLATO: Państwo. 1958.
- PLATONOW, K.K.: Problemy sposobnościj. Moskwa, 1972.
- POMYKAŁO, W.: Zdolni, wybitnie zdolni i utalentowani w ustroju socjalistycznym. In: Wychowanie (1972) No. 20/21.
- POPIELARSKA, A.: Zaburzenia psychiczne. In: Dojrzewanie (1982).
- PRACA - Praca z młodzieżą uzdolnioną. Materiały z konferencji Ministerstwa Oświaty i Wychowania (7.III.1973 r.) Warszawa (MOiW) 1974.
- PRACA - Praca z uczniem uzdolnionym w zintegrowanym systemie wychowawczym. Materiały z sympozjum naukowego. Katowice (IKNiBO) 1974.
- PRESSEY, S.L.: Concerning the nature and nurture of genius. In: The Scientific Monthly (1955) No. 3.
- PRZECŁAWSKA, Anna: Zróżnicowanie kulturalne młodzieży a problemy wychowania. Warszawa (PWN) 1976.
- PUŁTORAK, M.: Zaburzenia w stanie zdrowia u uczniów kończących szkoły średnie. In: Wychowanie Fizyczne Higieniczne (1982) No. 4 (272).
- PURKEY, W.W.: Inviting school success. Belmont (Wadsworth) 1984.
- RADISZCZEW, Aleksander: O czełowiekie, jego smiertnosti i biessmiertii. (Pełnoje sobranije soczinienij. Vol. II) 1809, Moskwa / Leningrad, 1941.
- RATAJ, M.: Uzdolnienia, kształcenie, praca. Warszawa (CRZZ) 1975.
- REBEL-RUNCKEL, Juana: Gegevens over hoogbegaafdheid. Tilburg (Binetstichting) 1984, 1986.

- REBEL-RUNCKEL, J.: Individualiseren, differentiëren ook naar begaafdheid. Rapport van de Dr Binetstichting over bijna zes jaar contacten met ouders, onderwijskringen, deskundigen en de hoogbegaafden zelf (...). Tilburg (Binetstichting) 1986.
- RENZULLI, J.S. / REIS, S.M. / SMITH, L.H.: The revolving door identification model. Mansfield Center, Connecticut (Creative Learning Press) 1981.
- REYKOWSKI, Janusz: Jak kształcić młodzież szczególnie uzdolnioną. In: Nasza Szkoła (1973) No. 1.
- REYKOWSKI, J.: Motywacja jednostki a struktura społeczna. Warszawa, paper IFiS-PAN d.d. 13 II 1974.
- REYKOWSKI, J.: Z zagadnień psychologii motywacji. Warszawa (Wydawnictwo Szkolne i Pedagogiczne) 1977.
- RICHARDSON, J. (ed.): Handbook of theory and research in sociology of education. London (Greenwood) 1986.
- ROSENTHAL, R. / JAKOBSON, L.: Pygmalion in the classroom. New York (Holt, Rinehart & Winston) 1968.
- RUBINSTEIN, D. / STONEMAN, C. (eds.): Education for democracy. Harmondsworth, Middlesex / Baltimore / Ringwood, Victoria (Penguin) 1973.
- RUBINSZTEJN, N.S.: Podstawy psychologii ogólnej. Warszawa (KiW) 1962.
- RUBINSZTEJN, S.L.: Osnovy obszczej psychologii. Moskwa, 1940.
- RUNCIMAN, W.G.: Relative deprivation and social justice. A study of attitudes to social inequality in twentieth-century England. London (Routledge & Kegan Paul) 1972.
- SANTEMA, M.: Onderwijsbeleid en regio. De kleine school als kapstok. Leiden, 1974.
- SARTORI, G.: Democratic theory. Detroit (Wayne State University) 1962.
- SCHWARZWELLER, Harry K.: Community of residence and career choices of German rural youth. In: Rural Sociology. Vol. 33 (1968) No. 1, pp. 46-63.
- SCHWARZWELLER, Harry K.: Regional variations in the educational plans of rural youth: Norway, Germany and the United States. In: Rural Sociology. Vol. 38 (1973) No. 2, pp. 139-158.
- SCHWARZWELLER, Harry K. / LYSON, Thomas A.: Social class, parental interest and the educational plans of American and Norwegian rural youth. In: Sociology of Education. Vol. 47 (1974) No. 3, pp. 443-465.
- SIKORA, A.: Poziom intelektualny młodzieży dwóch pokoleń. In: Psychologia Wychowawcza (1968) No. 1.
- SISK, Dorothy: Creative Teaching of the Gifted. New York etc. (McGraw-Hill) 1987.
- SKINNER, B.F.: Beyond freedom and dignity. London, 1971.
- SKINNER, B.F.: Poza wolnością i godnością. Warszawa (PIW) 1978.
- SKINNER, Ch.E.: Psychologia wychowawcza. Warszawa (PWN) 1971.
- SLAVENBURG, Jan H.: Onderwijsstimulering en gezinsactivering. Effecten van programma's van het project Onderwijs en Sociaal Milieu op de schoolprestaties van eersteklassers lager onderwijs. 's Gravenhage (SVO) 1986.
- SŁYSZOWA, Stefania: Rodzice o dzieciach uzdolnionych. Warszawa (Nasza Księgarnia) 1978.
- SMELSER, N.J. (ed.): Karl Marx on society and social change. With selections by Friedrich Engels. Chicago / London (University of Chicago Press) 1973.
- SMIRNOW, A. / LEONTIEW, A. / RUBINSZTEJN, S. / TIEPŁOW, B.: Psychologia. Warszawa, 1966.

- SPAN, P.: Begaafdheid, tussen wens en werkelijkheid. Oration Utrecht (March 11, 1988).
- SPENCER, Herbert: Essays on education. Intellectual, moral and physical. London (Dent) 1911 (original 1854-60).
- SPIONEK, H.: Zaburzenia rozwoju uczniów i niepowodzenia szkolne. Warszawa (PWN) 1975.
- SPITZ, J.G.: De reserve van hoger intellect in Nederland. Amsterdam, 1959.
- STEDTNITZ, U.: Pädagogische Beratung für hochbegabte Kinder und Jugendliche. Paper, Utrecht (May 30, 1987).
- STEFANOWIĆ, B.: Kształcenie zdolności. In: Przegląd Psychologiczny (1967) No. 13.
- STEINHAUSS, Hugo: Kilka uwag o reformie programu matematyki w szkole ogólnokształcącej. In: Nowa Szkoła (1960) No. 12.
- STERN, William: Inteligencja dzieci i młodzieży. Warszawa, 1920, 1927.
- STOKMAN, F.N.: Recruitering van de kern van de economische elite: de netwerkspecialist binnen het Nederlandse bedrijfsleven. In: Th. Mensen & G.W. Meijnen (eds.): Sociale stratificatie en onderwijs (1986) pp. 11-21.
- STRELAU, J.: Problemy i metody badań typów układu nerwowego człowieka. Wrocław / Warszawa / Kraków (Ossolineum) 1965.
- SUCHODOLSKI, Bogdan: Świat człowieka a wychowanie. Warszawa (KiW) 1967.
- SUCHODOLSKI, B.: Kształcenie zamilowań i uzdolnień. In: B. Suchodolski (ed.): Trzy pedagogiki (1970).
- SUCHOLOLSKI, B. (ed.): Trzy pedagogiki. 1970.
- SUCHODOLSKI, B.: Trzeba nie tylko wykrywać, ale stwarzać zdolności. In: Wychowanie (1972) No. 20/21.
- SUCHODOLSKI, B.: Problemy wychowania w cywilizacji nowoczesnej. Warszawa (PWN) 1974.
- SUCHODOLSKI, B.: Istota człowieka. In: Kwartalnik Pedagogiczny (1983) No. 3-4 (109-110) pp. 35-51.
- SUŁEK, Antoni: Nauczyciele akademicy w oczach studentów. In: Dydaktyka Szkoły Wyższej (1973) No. 3.
- SZCZEPAŃSKI, Jan: Gospodarowanie zasobami zdolności. In: Wiś Współczesna (1968) No. 9.
- SZCZEPAŃSKI, Jan: Socjologiczne zagadnienia wyższego wykształcenia. Warszawa 1969.
- SZEWCZUK, W.: Psychologia człowieka dorosłego. Warszawa, 1959, 1962.
- SZEWCZUK, W.: Psychologia, Vol. 2. Warszawa (PZWS) 1966.
- SZYMAŃSKI, Mirosław: Środowiskowe uwarunkowania selekcji szkolnej. Warszawa (PWN) 1973.
- SZYMAŃSKI, M.J.: Modernizacja systemu szkolnego na wsi. Warszawa (PWN) 1978.
- TATARKIEWICZ, T.: O szczęściu. Warszawa (PWN) 1962.
- TEORIE - Teorie socjologii miasta a problemy społeczne polskich miast. Wrocław (Ossolineum) 1982.
- TERMAN, L.M.: Genetic studies of genius. Vol. 1: mental and physical traits of a thousand gifted children. Stanford (Stanford University Press) 1925.
- TERMAN, L.M. / MERRILL, M.A.: Measuring intelligence. New York (Houghton-Mifflin) 1937.
- THOMAS, William I. / ZNANIECKI, Florian: Chłop polski w Europie i Ameryce. Warszawa (Ludowa Spółdzielnia Wydawnicza) 1976.
- THORNDIKE, E.L.: Uczenie się dorosłych. Wrocław (PZWL) 1950.
- TIEPŁOW, B.M.: Problemy indywidualnych rozlicz. Moscow (APN RSFSR) 1961.

- TREIMAN, Donald J. / ROBINSON, Robert V. (eds.): Research in social stratification and mobility. A research annual. Vol. 1, 1981.
- TRYFAN, Barbara: O równy start. Warszawa (LSW) 1974.
- TRYON, R.C.: Genetic differences in maze learning ability in rats. In: Yearbook of the National Society of Studies on Education (1940) No. 1.
- TUDDENHAM, R.D.: Soldier intelligence in World Wars I and II. In: American Psychologist (1948) No. 3, pp. 54-56.
- TYSZKOWA, M.: Czynniki determinujące pracę szkolną dziecka. Warszawa (PWN) 1964.
- ULTEE, W.C.: Verlaagd en verdiept. De lotgevallen van de stratificatieproblematiek sinds het einde der Leidse School. In: A.B. Berends et al.: Sociologisch Jaarboek (1985).
- VELEMA, E.: De Comprehensive School in Zweden en Noorwegen. Groningen (Wolters) 1959.
- VELEMA, E.: Het oriëntatiejaar van het lager technisch onderwijs. Een empirisch-pedagogisch onderzoek. Amsterdam (Nutsseminarium UvA) 1963.
- VERVOORT, C.E.: Onderwijs en maatschappij. Een oriëntering in de sociologie van het onderwijs. Nijmegen (LINK) 1975.
- VERVOORT, C.E.: De onderwijssociologie. Een historisch overzicht. In: J. Brands et al.: Andere wijs over onderwijs (1977).
- VINK, A.M.E.: Ontloken talent. Onderzoek naar de sociale herkomst van studenten aan de Universiteit van Amsterdam. Amsterdam (SI-UvA) 1986.
- WASYLUK-KUŚ, H.: O nauce szkolnej uczniów zdolnych. Warszawa (PZWS) 1971.
- WEBER, Barbara: Młodzież a współczesne wzory wychowawcze. Warszawa (ZMW) 1971.
- WEINERT, F.E. / WAGNER, H. (eds.): Die Förderung Hochbegabter in der Bundesrepublik Deutschland: Probleme, Perspektiven. Bad Honnef (Bock) 1987.
- WESOŁOWSKI, Włodzimierz: Stratification and meritocratic justice. In: Research in Social Stratification and Mobility (1981) pp. 249-265.
- WESOŁOWSKI, W. / KRAUZE, T.: Socialist society and the meritocratic principle of remuneration. In: G. Berreman (ed.): Social inequality (1981).
- WESSELINGH, A. (ed.): School en ongelijkheid. Hoe het onderwijs bijdraagt aan het handhaven van ongelijkheid in de maatschappij. Nijmegen (LINK) 1979.
- WESSELINGH, A.A.: Onderwijs en reproductie van maatschappelijke ongelijkheid 1975 - 1985. Nijmegen (ITS) 1985.
- WIECZERKOWSKI, W. / WAGNER, H. (eds.): Das hochbegabte Kind. Düsseldorf 1981.
- WIELEMANS, W.: De evolutie van het secundair onderwijs in Europees perspectief. In: W. Wielemans (ed.): Vernieuwingen in het secundair onderwijs. pp. 93 ff.
- WIELEMANS, W. (ed.): Vernieuwingen in het secundair onderwijs. Een Europese situering. De actuele evolutie in: de Duitse Bondsrepubliek - Engeland - Frankrijk - Nederland - Zweden. Analyse en synthese. Leuven / Amersfoort (Acco).
- WIERINGEN, A.M.L. van-: Maatschappelijke achtergronden van het onderwijs. Amsterdam (PDI-UvA) 1977.
- WIERINGEN, A.M.L. van- (ed.): Management van onderwijsinstellingen. Groningen (Wolters-Noordhoff) 1986.

- WIERZBICKI, Zbigniew T.: Ekologia człowieka a sozoekologia społeczna. In: Teorie socjologii miasta a problemy społeczne polskich miast (1982).
- WIECKOWSKI, R: Problem indywidualizacji w nauczaniu. Warszawa / Wrocław (Ossolineum) 1973.
- WIECKOWSKI, R: Nauczanie zróżnicowane. Warszawa (Nasza Księgarnia) 1975.
- WILGOCKA-OKOŃ, B: Dojrzałość szkolna a środowisko. Warszawa (PWN) 1972.
- WIŚNIEWSKI, Wiesław: Kryteria kwalifikowania młodzieży na studia wyższe. In: życie Szkoły Wyższej (1969) No. 10.
- WIŚNIEWSKI, W.: Wykształcenie w aspiracjach społeczeństwa polskiego. Warszawa (Instytut Socjologii Uniwersytetu warszawskiego) 1978.
- WITWICKI, W.: Platon jako pedagog. Warszawa 1947.
- WŁODARCZYK, J.: Sejmiki jako szkoła wychowania obywatelskiego (na przykładzie sejmików sieradzkiego i łeczyckiego. In: J.A. Gierowski (ed.): Dzieje kultury politycznej w Polsce (1977).
- WOJCIK, D.: Środowisko szkolne a nieprzystosowanie społeczne i przestępczość młodzieży. In: J. Jasicki (ed.): Zagadnienia nieprzystosowania społecznego i przestępczości (1978).
- WOLAŃSKI, N.: Normy kontroli i rozwoju dzieci i młodzieży. Warszawa (PZWL) 1974.
- WOLFF, P. de- / HÄRNGVIST, K.: Réserves d'aptitudes, leur importance et répartition. Paris (OCDE) 1962 (Halsey Report).
- WOŁOSZYN, S.: Dzieje wychowania i myśli pedagogicznej w zarysie. Warszawa (PWN) 1964.
- WOSKOWSKI, J.: Feminizacja zawodu nauczycielskiego. In: Kultura i Społeczeństwo (1963) No. 3.
- WÓJCIK, D.: Środowisko szkolne a nieprzystosowanie społeczne i przestępczości młodzieży. In: Zagadnienia nieprzystosowania społecznego i przestępczości (1978).
- WROCZYŃSKI, Ryszard: Edukacja permanentna. Problemy - perspektywy. Warszawa (PWN) 1973.
- YARTE, X.: Examen de ingenios paralassciencias. Madrid, 1957.
- ZAGADNIENIA - Zagadnienia nieprzystosowania społecznego i przestępczości. Warszawa, 1978.
- ZAJONC, R.B. / MARKUS, G.B.: Family configuration and intellectual development. A simulation at the University of Michigan, June 1976.
- ZAZZO, R.: Les jumeaux. Paris, 1960.
- ZIELIŃSKI, Józef: Młodzież chłopska na studiach. Warszawa (LSW) 1982.
- ZIÓŁKOWSKA-RUDOWICZ, Elżbieta: Zdolności intelektualne dzieci 10-12 letnich i ich uwarunkowania w pracy szkoły. Wrocław etc. (Ossolineum) 1982.

APPENDICES

Page:

A. Tables	337
B. Questionnaires	503
C. ECTA-output	519
D. Cumulative indices for major determinants of success.	520
E. Administrative map of the Polish People's Republic...	524

APPENDIX A

TABLES

Table I-0a

Level of industrialisation of the province where the pupil lives, socio-occupational background and success at the finals.

Socio-occupational category of the parents:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Pupils living in an average industrialised province.					
Absolute number (=100%)	463	163	137	9	1.2
teachers	25	32	22	27	1.7
other employees	41	48	34	25	1.7
manual workers	24	17	34	-26	0.6
farmers	9	4	9	6 12	
missing cases	0	0	1		
Pupils living in a low industrialised province.					
Absolute number (=100%)	503	133	156	-8	0.9
teachers	23	26	21	4	1.1
other employees	33	44	28	16	1.4
manual workers	21	18	24	-23	0.6
farmers	21	10	26	-51	0.3
missing cases	1	2	2		

Table I-0b

Level of industrialisation of the province where the pupil lives, socio-occupational background and success at the HALF-finals.

Socio-occupational category of the parents:	Half-finalists:			SR	SQ
	total	high scorers	low scorers		
Pupils living in an average industrialised province.					
Absolute number (=100%)	102	31	50	-23	0.6
teachers	17	29	10	9 5	
other employees	31	29	34	9 17	
manual workers	21	19	22	6 11	
farmers	30	19	34	6 17	
missing cases	1	3	0		
Pupils living in a low industrialised province.					
Absolute number (=100%)	217	48	95	-32	0.5
teachers	18	27	13	13 12	
other employees	26	31	26	-25	0.6
manual workers	19	19	19	9 18	
farmers	34	19	41	-62	0.2
missing cases	2	4	1		

Table 1-1

Local background and the chance of reaching the finals.

Place of residence:	Number of: pupils who completed primary school in 1976/77 (p)	finalists (adjusted for missing cases) (f)	The chance of reaching the finals ($100 * f / p$) total finals in: Po- math lish		
Poland (total)	532,989	4,995	.937	.41	.53
town	285,774	3,437	1.203	.48	.72
of which:					
- Warsaw	21,476 *	735	3.422	1.45	1.97
- other capital	111,796 *	965	.863	.35	.51
- other town	152,502 *	1,737	1.139	.48	.66
village	247,215	1,558	.630	.33	.30

* estimated

Sources: Rocznik statystyczny 1978, tables 49, 50, 51.

Rocznik statystyczny szkolnictwa 1978/79, table 8.

Table 1-2

Gender and success at the finals.

A. TOTAL

	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
girls	61.0	59.0	65.6	9	1.2
boys	39.0	41.0	34.4	22	1.6
of whom at the contest in:					
Polish language	2071	731	608	9	1.2
girls	79.0	80.3	78.0	11	1.2
boys	21.0	19.7	22.0	4	1.1
mathematics	2643	938	645	19	1.5
girls	46.5	42.1	53.2	7	1.2
boys	53.5	57.9	46.8	29	1.8

Table I-2

Gender and success at the finals.

B. PLACE OF RESIDENCE

	Finalists:			SR	SQ
	total	high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	1628	840	269	51	3.1
girls	56.9	56.4	59.9	49	2.9
boys	43.1	43.6	40.1	54	3.4
Other town.					
Absolute number (=100%)	1688	504	437	7	1.2
girls	60.1	59.6	66.8	1	1
boys	39.9	40.4	33.1	17	1.4
Village.					
Absolute number (=100%)	1344	320	554	-27	0.6
girls	66.9	65.9	67.5	-28	0.6
boys	33.1	34.1	32.5	-25	0.6

Table 1-2

Gender and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
girls	60.0	57.8	63.0	16	1.4
boys	40.0	42.2	37.0	26	1.7
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
girls	58.6	58.9	62.1	30	1.9
boys	41.4	41.1	37.9	36	2.1
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
girls	64.8	61.8	70.0	-24	0.6
boys	35.2	38.2	30.0	-6	0.9
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
girls	67.8	61.1	70.2	-53	0.3
boys	32.2	38.9	29.8	-36	0.5

Table I-3

Local background and success at the finals.

A. TOTAL

Place of residence:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
Warsaw	13.9	29.5	5.1	77	7.7
other capital	18.3	20.9	16.3	26	1.7
other town	32.9	30.3	34.7	7	1.2
village with school and other cultural institution	18.5	12.2	27.2	-26	0.6
village with school but no other cultural institution	1.4	1.0	1.8	-15	0.7
village with one other cultural institution	6.8	4.8	9.8	-21	0.7
village without school or other cultural institution	2.8	1.2	5.1	-52	0.3
missing cases	5.4	.1	.0		

Table I-3
Local background and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Place of residence:	Finalists: total	high scorers	low scorers	SR	SQ
Teachers. Absolute number (=100%)	1033	393	262	20	1.5
Warsaw	10.6	20.9	3.1	82	9+
other capital	18.8	21.4	15.6	34	2
other town	38.5	34.4	37.8	15	1.4
village with school and other cultural institution	22.5	16.3	31.3	-12	0.8
village with school but no other cultural institution	1.8	1.3	2.7	5 7	
village with one other cultural institution	6.0	5.1	6.5	8	1.2
village without school or other cultural institution	1.8	.8	3.1	3 8	
missing cases	.0	.0	.0		
Other employees. Absolute number (=100%)	2325	975	499	32	2.0
Warsaw	22.0	36.9	10.0	76	7.2
other capital	25.6	23.8	24.4	31	1.9
other town	37.7	29.2	44.1	13	1.3
village with school and other cultural institution	10.5	7.0	15.6	-7	0.9
village with school but no other cultural institution	.6	.5	.8	5 4	
village with one other cultural institution	2.9	1.8	4.6	-12	0.8
village without school or other cultural institution	.5	.5	.4	5 2	
missing cases	.1	.2	.0		

Table I-3
Local background and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Place of residence:	Finalists: total	high scorers	low scorers	SR	SQ
Manual workers. Absolute number (=100%)	973	233	335	-18	0.7
Warsaw	6.9	18.5	1.8	76	7.2
other capital	12.4	14.2	12.2	-11	0.8
other town	36.0	34.3	32.5	-15	0.7
village with school and other cultural institution	26.7	18.5	29.9	-40	0.4
village with school but no other cultural institution	2.1	1.7	2.4	4 8	
village with one other cultural institution	11.1	10.3	13.7	-31	0.5
village without school or other cultural institution	4.8	2.6	7.5	-61	0.2
missing cases	.0	.0	.0		
Farmers. Absolute number (=100%)	361	54	151	-47	0.4
Warsaw	.0	.0	.0	0 0	
other capital	.3	.0	.0	0 0	
other town	3.0	1.9	4.0	1 6	
village with school and other cultural institution	49.0	51.9	51.7	-47	0.4
village with school but no other cultural institution	3.9	3.7	2.6	2 4	
village with one other cultural institution	27.1	33.3	23.8	-33	0.5
village without school or other cultural institution	16.6	9.3	17.9	-69	0.2
missing cases	.0	.0	.0		

Table I-5

School size and the chance of reaching the finals.

School size (the number of pupils of the school):	Number of: pupils who completed primary school in 1976/77 (p)	finalists (adjusted for missing cases) (f)	The chance of reaching the finals ($100 \times f / p$)		
			total	finals in: Po-lish	math
Total	532,989	4,995	.937	.41	.53
up to 100	15,444 *	109	.706	.38	.32
101 - 200	88,296 *	582	.659	.34	.32
201 - 400	122,319 *	911	.745	.38	.37
401 - 700	166,182 *	1,698	1.022	.44	.58
more than 700	140,748 *	1,695	1.204	.46	.75

* estimated

Source: Rocznik statystyczny 1978, tables 558, 559.

Table I-5a

School-size and success at the finals.

TOTAL

Number of pupils in the school attended by the finalist:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
up to 100	1.7	1.1	2.5	-28	.6
101 - 200	9.3	5.2	14.7	-36	.5
201 - 400	14.5	12.3	19.0	-8	.9
401 - 550	11.5	11.0	12.8	6	1.1
551 - 700	15.6	19.6	14.5	28	1.8
more than 700	27.0	31.7	23.4	28	1.8
missing cases	20.4	19.1	13.1		

Table I-5a
School-size and success at the finals.

PLACE OF RESIDENCE

Number of pupils in the school attended by the finalist:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Capital of a province. Absolute number (=100%)	1628	840	269	51	3.1
up to 100		.6	1.5	5 4	
101 - 200		.8	.7	7 2	
201 - 400		6.2	11.5	25	1.7
401 - 550		10.1	10.8	49	2.9
551 - 700		19.0	19.3	51	3.1
more than 700		36.0	40.1	47	2.8
missing cases		27.3	16.0		
Other town. Absolute number (=100%)	1688	504	437	7	1.2
up to 100		.8	0	4 0	
101 - 200		.8	3.2	4 14	
201 - 400		11.1	8.7	19	1.5
401 - 550		11.5	12.4	4	1.1
551 - 700		26.4	21.3	18	1.4
more than 700		39.3	37.1	10	1.2
missing cases		10.1	17.4		
Village. Absolute number (=100%)	1344	320	554	-27	0.6
up to 100		2.8	4.9	-50	.3
101 - 200		23.4	30.5	-39	.4
201 - 400		30.0	30.9	-28	.6
401 - 550		12.8	14.1	-31	.5
551 - 700		10.0	6.9	-9	.8
more than 700		8.8	4.5	6	1.1
missing cases		12.2	8.3		

Table 1-5a
School-size and success at the finals.

SOCIO-OCCUPATIONAL BACKGROUND

Number of pupils in the school attended by the finalist:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
up to 100	1.9	1.0	1.9	4 5	
101 - 200	10.5	8.7	12.6	1	1
201 - 400	14.5	13.0	19.5	0	1
401 - 550	12.3	13.2	14.9	14	1.3
551 - 700	18.7	22.1	16.0	35	2.1
more than 700	27.8	26.2	22.9	26	1.7
missing cases	14.3	15.8	12.2		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
up to 100	.9	.8	1.4	8 7	
101 - 200	3.3	1.4	5.8	-35	.5
201 - 400	11.0	9.6	14.0	15	1.3
401 - 550	11.4	9.6	12.0	22	1.6
551 - 700	18.8	19.6	18.4	35	2.1
more than 700	36.5	38.1	34.1	37	2.2
missing cases	18.0	20.8	14.2		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
up to 100	2.0	1.3	2.7	3 9	
101 - 200	15.6	9.0	18.5	-49	.3
201 - 400	18.7	17.2	20.0	-25	.6
401 - 550	14.8	14.6	14.0	-16	.7
551 - 700	13.3	17.6	13.4	-5	.9
more than 700	20.2	21.0	17.9	-10	.8
missing cases	15.4	19.3	13.4		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
up to 100	7.2	5.6	6.6	3 10	
101 - 200	32.7	29.6	37.1	-56	.3
201 - 400	36.8	37.0	33.1	-43	.4
401 - 550	8.9	7.4	8.6	4 13	
551 - 700	3.6	5.6	2.6	3 4	
more than 700	3.6	7.4	2.6	4 4	
missing cases	7.2	7.4	9.3		

Table 1-5aD
School-size and success at the HALF-finals.

Number of pupils in the participant's school:	Half-finalists:			SR	SQ
	total	high scorers	low scorers		
TOTAL					
Absolute number (=100%)	338	89	152	-26	0.6
up to 100	3.8	2.2	3.9	2 6	
101 - 200	23.4	20.2	25.7	-37	0.5
201 - 400	28.4	29.2	23.7	-16	0.7
401 - 550	16.0	13.5	15.8	-33	0.5
551 - 700	5.6	6.7	7.2	6 11	
more than 700	17.5	24.7	16.4	-6	0.9
missing cases	5.3	3.4	7.2		
SOCIO-OCCUPATIONAL BACKGROUND					
Employees.					
Absolute number (=100%)	158	54	63	-8	0.9
up to 100	2.5	3.7	0	2 0	
101 - 200	13.3	16.7	11.1	9 7	
201 - 400	17.7	22.2	12.7	12 8	
401 - 550	21.5	11.1	25.4	6 16	
551 - 700	7.6	9.3	11.1	5 7	
more than 700	32.9	35.2	33.4	-5	0.9
missing cases	4.4	1.8	6.3		
Manual workers.					
Absolute number (=100%)	67	15	32	-36	0.5
up to 100	3.0	.0	3.1	0 1	
101 - 200	28.4	13.3	34.4	2 11	
201 - 400	29.9	46.7	18.8	7 6	
401 - 550	20.9	26.7	18.8	4 6	
551 - 700	7.5	6.7	6.3	1 2	
more than 700	7.5	6.7	12.5	1 4	
missing cases	3.0	.0	6.3		
Farmers.					
Absolute number (=100%)	108	17	56	-53	0.3
up to 100	6.5	.0	8.9	0 5	
101 - 200	35.2	41.2	35.7	7 20	
201 - 400	43.5	41.2	39.3	7 22	
401 - 550	4.6	5.9	3.6	1 2	
551 - 700	1.9	.0	3.6	0 2	
more than 700	1.9	11.8	.0	2 0	
missing cases	6.5	.0	8.9		

Table I-6
Scores at the finals.

A. TOTAL

Score:	Finalists:		
	total	at the contest in:	
		Polish	mathematics
Absolute number (=100%)	4995	2071	2637
high:			
1	17.0	18.9	17.4
2	16.4	16.4	18.2
middle:			
3	15.5	13.7	18.3
4	13.6	11.0	17.0
low:			
5	13.5	11.7	16.3
6	11.7	17.6	7.9
missing cases	12.4	10.7	5.0
median score	2.67	2.68	2.65

Note: the 325 participants at finals where a 3-point scale of scores was applied, could not be included in this table.

Table I-6
Scores at the finals.

B. PLACE OF RESIDENCE

Score:	Finalists:		
	total	at the contest in:	
		Polish	mathematics
Capital of a province. Absolute number (=100%)	1628	625	1003
high:			
1	29.5	29.9	29.3
2	22.1	17.6	24.8
middle scores or missing cases	31.9	29.4	33.6
low:			
5	7.9	5.6	9.3
6	8.7	17.4	3.0
Other town. Absolute number (=100%)	1688	725	960
high:			
1	14.3	17.5	12.0
2	15.6	14.9	16.5
middle scores or missing cases	44.3	38.1	48.1
low:			
5	14.5	11.9	16.8
6	11.4	17.7	6.7
Village. Absolute number (=100%)	1344	696	630
high:			
1	9.3	11.1	8.3
2	14.5	17.4	11.3
middle scores or missing cases	35.0	35.6	33.2
low:			
5	22.5	17.5	28.7
6	18.8	18.3	18.6

Note: the 325 participants at finals where a 3-point scale of scores was applied, could not be included in this table.

Table 1-6
Scores at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Score:	Finalists: total	at the contest in:	
		Polish	mathematics
Teachers.			
Absolute number (=100%)	1035	482	553
high:			
1	20.2	21.8	19.0
2	17.8	18.0	18.6
middle:			
3	15.9	13.1	18.4
4	14.3	13.5	15.0
low:			
5	12.9	10.2	15.2
6	12.5	15.6	8.5
missing cases	6.4	7.7	5.2
median score	2.55	2.48	2.53
Other employees.			
Absolute number (=100%)	2325	992	1332
high:			
1	22.7	23.9	21.9
2	19.3	17.1	20.7
middle:			
3	15.6	10.0	19.8
4	12.9	8.4	16.3
low:			
5	11.5	10.0	12.8
6	9.9	17.1	4.4
missing cases	8.1	13.5	4.1
median score	2.25	2.23	2.27

Note: the 325 participants at finals where a 3-point scale of scores was applied, could not be included in this table.

Table I-6
Scores at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Score:	Finalists: total	at the contest in:	
		Polish	mathematics
Manual workers.			
Absolute number (=100%)	973	403	562
high:			
1	9.4	9.7	9.3
2	14.6	15.4	13.7
middle:			
3	17.8	17.6	17.4
4	16.0	10.9	19.8
low:			
5	19.1	14.9	22.4
6	15.3	20.8	11.4
missing cases	7.8	10.7	6.0
median score	3.27	3.18	3.33
Farmers.			
Absolute number (=100%)	361	174	175
high:			
1	4.2	4.6	4.0
2	10.8	9.8	12.0
middle:			
3	18.8	27.6	9.1
4	19.9	20.7	19.4
low:			
5	22.4	17.2	28.0
6	19.4	17.8	20.6
missing cases	4.4	2.3	6.9
median score	3.70	3.33	4.07

Note: the 325 participants at finals where a 3-point scale of scores was applied, could not be included in this table.

Table I-7

School-marks for ALL subjects during the semestre before the competition and success at the finals.

TOTAL

The finalist obtained in the first semestre:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
no other than very good marks	29.7	34.0	27.5	24	1.6
more very good marks than good ones	42.9	44.1	44.5	13	1.3
more good than very good marks	9.3	7.7	13.8	-15	.7
at least one mark no more than sufficient	8.2	8.1	9.6	5	1.1
at least one mark insufficient	.2	.1	.2	2 3	
missing cases	9.7	6.0	4.4		

Table I-7

School-marks for ALL subjects during the semestre before the competition and success at the finals.

PLACE OF RESIDENCE

The finalist obtained in the first semestre:	Finalists: total	high scorers	low scorers	SR	SQ
Capital of a province. Absolute number (=100%)	1628	840	269	51	3.1
no other than very good marks		25.5	25.3	52	3.2
more very good marks than good ones		48.9	42.4	57	3.7
more good than very good marks		10.0	13.8	39	2.3
at least one mark no more than sufficient		10.2	14.5	38	2.2
at least one mark insufficient		0	.4	0	1
missing cases		5.4	3.7		
Other town. Absolute number (=100%)	1688	504	437	7	1.2
no other than very good marks		40.3	24.5	31	1.9
more very good marks than good ones		41.1	48.3	-1	1
more good than very good marks		5.8	11.9	-28	.6
at least one mark no more than sufficient		6.3	9.2	-11	.8
at least one mark insufficient		.2	.2	1	1
missing cases		6.3	5.9		
Village. Absolute number (=100%)	1344	320	554	-27	0.6
no other than very good marks		46.9	31.0	-7	.9
more very good marks than good ones		35.9	42.6	-34	.5
more good than very good marks		5.0	15.3	-68	.2
at least one mark no more than sufficient		5.3	7.6	-42	.4
at least one mark insufficient		0	0	0	0
missing cases		6.9	3.4		

Table I-7

School-marks for ALL subjects during the semestre before the competition and success at the finals.

SOCIO-OCCUPATIONAL BACKGROUND

The finalist obtained in the first semestre:	Finalists: total	high scorers	low scorers	SR	SQ
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
no other than very good marks	42.1	46.3	37.4	30	1.9
more very good marks than good ones	40.3	33.6	40.5	11	1.2
more good than very good marks	6.9	7.4	11.1	0	1
at least one mark no more than sufficient	5.4	6.9	4.2	42	2.4
at least one mark insufficient	.2	0	0	0 0	
missing cases	5.1	5.9	6.9		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
no other than very good marks	29.6	31.3	27.1	39	2.3
more very good marks than good ones	48.9	47.8	49.3	31	1.9
more good than very good marks	8.5	7.2	10.2	16	1.4
at least one mark no more than sufficient	8.4	7.9	10.4	19	1.5
at least one mark insufficient	.1	.1	.2	1 1	
missing cases	4.4	5.7	2.8		

Table I-7

School-marks for ALL subjects during the semestre before the competition and success at the finals.

SOCIO-OCCUPATIONAL BACKGROUND

The finalist obtained in the first semestre:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
no other than very good marks	26.4	27.0	22.7	-9	.8
more very good marks than good ones	43.6	47.6	40.9	-10	.8
more good than very good marks	13.5	9.9	18.2	-45	.4
at least one mark no more than sufficient	12.1	9.4	12.5	-31	.5
at least one mark insufficient	.2	0	.3	0 1	
missing cases	4.2	6.0	5.4		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
no other than very good marks	25.8	27.8	23.2	-40	.4
more very good marks than good ones	42.9	42.6	42.4	-47	.4
more good than very good marks	16.3	7.4	21.2	-78	.1
at least one mark no more than sufficient	10.2	14.8	9.9	8 15	
at least one mark insufficient	.3	0	0	0 0	
missing cases	4.4	7.4	3.3		

Table I-8

School-marks for the subject of the competition and for related subjects in the first semestre and success at the finals.

TOTAL

The finalist obtained in the first semestre:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
no other than very good marks	59.3	66.9	56.2	22	1.6
more very good marks than good ones	18.2	18.1	21.3	6	1.1
more good than very good marks	13.5	11.2	18.5	-11	.8
at least one mark no more than sufficient	2.2	1.7	2.5	-7	.9
missing cases	6.8	2.1	1.5		

Table 1-8

School-marks for the subject of the competition and for related subjects in the first semestre and success at the finals.

PLACE OF RESIDENCE

The finalist obtained in the first semestre:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Capital of a province. Absolute number (=100%)	1628	840	269	51	3.1
no other than very good marks		59.9	51.3	57	3.7
more very good marks than good ones		20.7	22.7	48	2.8
more good than very good marks		15.1	21.6	37	2.2
at least one mark no more than sufficient		2.0	3.3	17	9
missing cases		2.3	1.1		
Other town. Absolute number (=100%)	1688	504	437	7	1.2
no other than very good marks		73.6	58.6	18	1.4
more very good marks than good ones		16.5	21.5	-6	.9
more good than very good marks		6.7	14.6	-31	.5
at least one mark no more than sufficient		2.0	3.0	10	13
missing cases	11.7	1.2	2.3		
Village. Absolute number (=100%)	1344	320	554	-27	0.6
no other than very good marks		74.4	56.7	-14	.8
more very good marks than good ones		13.8	20.6	-44	.4
more good than very good marks		8.1	20.0	-62	.2
at least one mark no more than sufficient		.6	1.6	2	9
missing cases	11.7	3.1	1.1		

Table I-8

School-marks for the subject of the competition and for related subjects in the first semestre and success at the finals.

SOCIO-OCCUPATIONAL BACKGROUND

The finalist obtained in the first semestre:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
no other than very good marks	72.6	74.3	67.2	25	1.7
more very good marks than good ones	15.7	13.7	17.2	9	1.2
more good than very good marks	8.8	9.2	12.2	6	1.1
at least one mark no more than sufficient	1.4	1.3	1.5	5 4	
missing cases	1.5	1.5	1.9		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
no other than very good marks	63.0	66.3	57.5	38	2.2
more very good marks than good ones	20.6	19.4	24.4	22	1.5
more good than very good marks	12.8	11.0	14.0	21	1.5
at least one mark no more than sufficient	2.2	1.4	2.6	14 13	
missing cases	1.4	1.9	1.4		

Table I-8

School-marks for the subject of the competition and for related subjects in the first semestre and success at the finals.

SOCIO-OCCUPATIONAL BACKGROUND

The finalist obtained in the first semestre:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Manual workers. Absolute number (=100%)	973	233	335	-18	0.7
no other than very good marks	56.5	60.5	50.1	-9	.8
more very good marks than good ones	18.6	18.9	19.4	-19	.7
more good than very good marks	20.7	15.0	26.6	-44	.4
at least one mark no more than sufficient	2.8	3.4	2.7	8 9	
missing cases	1.4	2.1	1.2		
Farmers. Absolute number (=100%)	361	54	151	-47	0.4
no other than very good marks	50.4	59.3	46.4	-37	.5
more very good marks than good ones	21.6	20.4	22.5	-51	.3
more good than very good marks	21.9	13.0	25.8	-70	.2
at least one mark no more than sufficient	4.2	3.7	3.3	2 5	
missing cases	1.9	3.7	2.0		

Table I-10

Distance between the finalists' place of residence and the capital of their province.

A. TOTAL

Finalist lives:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
in Warsaw	13.9	29.5	5.1	77	7.7
in another capital	18.3	20.9	16.1	26	1.7
up to 10 km. from the capital	2.9	2.2	3.1	-3	0.9
11-20 km. from the capital	7.5	7.5	9.2	4	1.1
21-40 km. from the capital	20.4	16.1	26.0	-10	0.8
41-60 km. from the capital	11.9	9.5	16.0	-12	0.8
more than 60 km. from the capital	7.7	5.9	8.3	-3	0.9
missing cases	17.4	8.3	16.3		

Table I-10

Distance between the finalists' place of residence and the capital of their province.

C. SOCIO-OCCUPATIONAL BACKGROUND

Finalist lives:	Finalists: total	high scorers	low scorers	SR	SQ
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
in Warsaw	10.6	20.9	3.1	82	9+
in another capital	19.4	21.8	16.7	32	1.9
up to 10 km. from the capital	2.5	.8	4.2	3	11
11-20 km. from the capital	6.2	5.3	6.5	11	1.2
21-40 km. from the capital	22.9	18.3	25.6	4	1.1
41-60 km. from the capital	15.9	16.5	17.9	16	1.4
more than 60 km. from the capital	9.8	7.6	8.8	13	1.3
missing cases	12.7	8.7	17.2		
Other employees.					
Absolute number (=100%)	2325	975	499	32	1.9
in Warsaw	22.0	36.9	10.0	76	7.3
in another capital	25.3	23.5	23.7	32	1.9
up to 10 km. from the capital	2.8	2.1	2.6	21	1.5
11-20 km. from the capital	7.1	6.9	8.4	23	1.6
21-40 km. from the capital	18.0	13.0	22.6	6	1.1
41-60 km. from the capital	10.0	6.5	13.6	-4	0.9
more than 60 km. from the capital	6.1	4.9	6.6	19	1.5
missing cases	8.7	6.3	12.4		

Table I-10

Distance between the finalists' place of residence and the capital of their province.

C. SOCIO-OCCUPATIONAL BACKGROUND

Finalist lives:	Finalists: total	high scorers	low scorers	SR	SQ
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
in Warsaw	6.9	18.5	1.8	76	7.3
in another capital	12.3	14.1	11.9	-10	0.8
up to 10 km. from the capital	4.0	4.3	3.0	10	10
11-20 km. from the capital	11.1	12.4	13.1	-21	0.7
21-40 km. from the capital	26.1	24.0	29.3	-27	0.6
41-60 km. from the capital	12.2	9.0	12.5	-33	0.5
more than 60 km. from the capital	10.8	6.9	10.1	-36	0.5
missing cases	16.5	10.7	18.2		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
in Warsaw	0	0	0	0	0
in another capital	1.1	0	0	0	0
up to 10 km. from the capital	3.3	5.6	2.6	3	4
11-20 km. from the capital	9.4	13.0	8.6	7	13
21-40 km. from the capital	30.7	25.9	32.5	-56	0.3
41-60 km. from the capital	19.7	14.8	26.5	-67	0.2
more than 60 km. from the capital	10.2	9.3	9.3	5	14
missing cases	26.0	31.5	20.5		

Table I-11

The pupils' way to school and success at the finals.

A. TOTAL

	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
Finalists travelling:					
by one means of transport:					
up to half a kilometre	6.8	6.0	8.5	-3	0.9
0,6 - 3 km.	1.5	1.1	2.1	-18	0.7
more than 3 km.	.9	.8	1.1	13 14	
by more than one means of transport					
	.3	.5	.2	8 3	
Finalists walking:					
up to half a kilometre	54.4	63.7	54.9	21	1.5
0,6 - 3 km.	23.6	20.5	25.4	3	1.1
3,1 - 5 km.	.9	.3	1.7	5 21	
more than 5 km.	.1	.1	.1	2 1	
Missing cases	11.5	6.9	6.0		

Table I-11

The pupils' way to school and success at the finals.

B. PLACE OF RESIDENCE

	Finalists: total	high scorers	low scorers	SR	SQ
Capital of a province.					
Absolute number (=100%)	1628	840	269	51	3.1
Finalists travelling:					
by one means of transport:					
up to half a kilometre	5.1	6.7	41	2.4	
0,6 - 3 km.	1.1	1.5	9 4		
more than 3 km.	.2	.4	2 1		
by more than one means of transport	.6	.4	5 1		
Finalists walking:					
up to half a kilometre	71.5	66.5	54	3.3	
0,6 - 3 km.	12.6	18.6	36	2.1	
3,1 - 5 km.	.1	0	1 0		
more than 5 km.	0	0	0 0		
Missing cases	8.7	5.9			
Other town.					
Absolute number (=100%)	1688	504	437	7	1.2
Finalists travelling:					
by one means of transport:					
up to half a kilometre	3.4	1.6	17 7		
0,6 - 3 km.	.4	.7	2 3		
more than 3 km.	.6	.5	3 2		
by more than one means of transport	.8	0	4 0		
Finalists walking:					
up to half a kilometre	63.9	68.4	4	1.1	
0,6 - 3 km.	27.2	23.3	15	1.4	
3,1 - 5 km.	0	0	0 0		
more than 5 km.	0	0	0 0		
Missing cases	3.8	5.5			
Village.					
Absolute number (=100%)	1344	320	554	-27	0.6
Finalists travelling:					
by one means of transport:					
up to half a kilometre	12.5	14.8	-34	0.5	
0,6 - 3 km.	2.5	3.6	8 20		
more than 3 km.	2.8	2.0	9 11		
by more than one means of transport	0	.4	0 2		
Finalists walking:					
up to half a kilometre	43.1	38.6	-22	0.6	
0,6 - 3 km.	30.3	30.3	-27	0.6	
3,1 - 5 km.	1.3	3.8	4 21		
more than 5 km.	.3	.2	1 1		
Missing cases	7.2	6.3			

Table I-11

The pupils' way to school and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

	Finalists: total	high scorers	low scorers	SR	SQ
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
Finalists travelling:					
by one means of transport:					
up to half a kilometre	6.5	5.9	7.3	10	1.2
0,6 - 3 km.	1.3	1.3	1.1	5 3	
more than 3 km.	1.3	.8	1.1	3 3	
by more than one means of transport	.6	1.0	.4	4 1	
Finalists walking:					
up to half a kilometre	62.9	64.9	67.2	18	1.4
0,6 - 3 km.	20.8	21.1	15.6	34	2.0
3,1 - 5 km.	.1	0	0	0 0	
more than 5 km.	.1	0	.4	0 1	
Missing cases	6.5	5.1	6.9		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
Finalists travelling:					
by one means of transport:					
up to half a kilometre	5.0	5.6	4.2	45	2.6
0,6 - 3 km.	.9	.8	1.4	8 7	
more than 3 km.	.5	.7	.8	7 4	
by more than one means of transport	.3	.4	.4	4 2	
Finalists walking:					
up to half a kilometre	64.6	67.5	62.5	36	2.1
0,6 - 3 km.	21.5	17.3	24.4	16	1.4
3,1 - 5 km.	.1	.1	.2	1 1	
more than 5 km.	0	0	0	0 0	
Missing cases	6.9	7.5	6.0		

Table I-11

The pupils' way to school and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

	Finalists:			SR	SQ
	total	high scorers	low scorers		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
Finalists travelling:					
by one means of transport:					
up to half a kilometre	8.6	6.0	11.6	-47	0.4
0,6 - 3 km.	1.8	1.7	2.1	4 7	
more than 3 km.	.9	.4	.9	1 3	
by more than one means of transport	.1	.4	0	1 0	
Finalists walking:					
up to half a kilometre	49.4	58.8	48.4	-8	0.9
0,6 - 3 km.	31.8	26.6	28.7	-22	0.6
3,1 - 5 km.	1.6	0	2.4	0 8	
more than 5 km.	.1	0	0	0 0	
Missing cases	5.5	6.0	6.0		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
Finalists travelling:					
by one means of transport:					
up to half a kilometre	20.2	14.8	18.5	-56	0.3
0,6 - 3 km.	5.3	3.7	5.3	2 8	
more than 3 km.	2.8	5.6	2.6	3 4	
by more than one means of transport	0	0	0	0 0	
Finalists walking:					
up to half a kilometre	19.4	14.8	23.2	-63	0.2
0,6 - 3 km.	40.4	46.3	39.7	-41	0.4
3,1 - 5 km.	6.6	7.4	7.3	4 11	
more than 5 km.	.3	1.9	0	1 0	
Missing cases	5.0	5.6	3.3		

Table I-12a

Family-size and success at the finals.

A. TOTAL

	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
complete family with:					
one child	12.6	17.7	8.7	46	2.7
two children	39.9	46.6	38.2	23	1.6
three children	22.1	21.2	25.6	4	1.1
four children	9.7	8.2	13.4	-10	0.8
five children	3.9	1.9	5.3	-35	0.5
six or more children	3.1	1.3	5.3	-51	0.3
incomplete family	2.9	2.5	3.4	-1	1
orphanage	.1	.1	0	2	0
missing cases	5.6	.5	.1		

Table I-12a
Family-size and success at the finals.

B. PLACE OF RESIDENCE

	Finalists: total	high scorers	low scorers	SR	SQ
Capital of a province.					
Absolute number (=100%)	1628	840	269	51	3.1
complete family with:					
one child		25.8	19.0	62	4.3
two children		50.4	49.1	52	3.2
three children		15.0	17.8	45	2.6
four children		3.9	5.9	35	2.1
five children		.6	2.2	5 6	
six or more children		.5	1.9	4 5	
incomplete family		3.0	4.1	39	2.3
orphanage		0	0	0 0	
missing cases		.8	0		
Other town.					
Absolute number (=100%)	1688	504	437	7	1.2
complete family with:					
one child		9.9	7.8	19	1.5
two children		49.2	47.6	9	1.2
three children		26.0	24.9	9	1.2
four children		10.5	9.2	14	1.3
five children		1.4	3.4	7 15	
six or more children		1.0	3.4	5 15	
incomplete family		1.8	3.4	9 15	
orphanage		0	0	0 0	
missing cases		.2	.2		
Village.					
Absolute number (=100%)	1344	320	554	-27	0.6
complete family with:					
one child		8.8	4.3	8	1.2
two children		32.2	25.5	-16	0.7
three children		30.3	30.0	-26	0.6
four children		15.9	20.4	-38	0.5
five children		5.9	8.3	-42	0.4
six or more children		4.1	8.5	-57	0.3
incomplete family		2.5	3.1	8 17	
orphanage			0	0 0	
missing cases		.3	0		

Table I-12a
Family-size and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

	Finalists: total	high scorers	low scorers	SR	SQ
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
complete family with:					
one child	11.1	14.0	6.5	53	3.3
two children	52.1	50.6	47.3	23	1.6
three children	22.9	23.4	26.3	14	1.3
four children	7.8	7.4	11.1	0	1
five children	2.2	1.5	3.1	6 8	
six or more children	.7	.5	1.9	2 5	
incomplete family	3.1	2.5	3.8	10 10	
orphanage	0	0	0	0 0	
missing cases	0	0	0		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
complete family with:					
one child	18.2	21.9	13.0	53	3.3
two children	47.6	48.7	49.3	32	1.9
three children	21.0	19.0	22.6	24	1.6
four children	7.1	5.9	7.6	21	1.5
five children	2.0	.8	2.6	8 13	
six or more children	.9	.5	1.6	5 8	
incomplete family	2.8	2.5	3.0	23	1.6
orphanage	.1	.1	0	1 0	
missing cases	.4	.5	.2		

Table I-12a
Family-size and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

	Finalists: total	high scorers	low scorers	SR	SQ
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
complete family with:					
one child	7.8	9.9	6.9	0	1
two children	30.3	39.1	26.3	2	1
three children	29.1	25.8	31.9	-28	0.6
four children	14.5	14.2	15.5	-22	0.6
five children	8.4	4.3	8.4	-47	0.4
six or more children	5.5	3.4	6.6	-47	0.4
incomplete family	4.1	3.0	4.5	7 15	
orphanage	0	0	0	0 0	
missing cases	.2	.4	0		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
complete family with:					
one child	2.5	1.9	.7	1 1	
two children	13.0	14.8	11.9	8 18	
three children	24.9	27.8	21.9	-37	0.5
four children	26.3	29.6	31.1	-49	0.3
five children	11.4	13.0	11.9	7 18	
six or more children	19.1	11.1	20.5	-68	0.2
incomplete family	2.2	1.9	2.0	1 3	
orphanage	.3	0	0	0 0	
missing cases	.3	0	0		

Table 1-12b

Birth-order and success at the finals.

A. TOTAL

The finalist is a:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
first-born child	52.2	61.0	50.5	23	1.6
second child	27.3	27.8	28.5	13	1.3
third child	8.7	7.1	11.0	-8	0.8
fourth or later child	4.8	2.3	7.8	-44	0.4
missing cases	7.0	1.7	2.2		

Table I-12b
Birth-order and success at the finals.

B. PLACE OF RESIDENCE

The finalist is a:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	1628	840	269	51	3.1
first-born child		65.2	58.4	55	3.4
second child		27.7	32.0	46	2.7
third child		4.6	4.5	53	3.3
fourth or later child		.8	3.7	7 10	
missing cases		1.5	1.5		
Other town.					
Absolute number (=100%)	1688	504	437	7	1.2
first-born child		59.5	53.1	13	1.3
second child		28.8	29.5	6	1.1
third child		8.5	11.2	-7	0.9
fourth or later child		2.0	4.8	-35	0.5
missing cases		1.2	1.4		
Village.					
Absolute number (=100%)	1344	320	554	-27	0.6
first-born child		52.5	44.6	-19	0.7
second child		26.3	26.0	-26	0.6
third child		11.6	14.1	-36	0.5
fourth or later child		6.9	12.1	-51	0.3
missing cases		2.8	3.2		

Table I-12b
Birth-order and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

The finalist is a:	Finalists: total	high scorers	low scorers	SR	SQ
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
first-born child	62.3	64.9	60.3	23	1.6
second child	30.3	28.2	30.5	16	1.4
third child	4.1	4.3	5.0	13	1.3
fourth or later child	1.5	.8	2.3	3 6	
missing cases	1.7	1.8	1.9		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
first-born child	61.3	64.4	58.1	37	2.2
second child	28.8	27.6	30.1	28	1.8
third child	6.9	5.7	8.4	14	1.3
fourth or later child	2.0	.9	2.6	9 13	
missing cases	1.0	1.3	.8		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
first-born child	42.8	48.1	42.1	-11	0.8
second child	29.6	30.9	25.1	-8	0.9
third child	14.3	12.4	14.9	-27	0.6
fourth or later child	10.9	7.3	14.6	-48	0.3
missing cases	2.5	1.3	3.3		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
first-born child	29.4	31.5	27.8	-42	0.4
second child	24.7	20.4	28.5	-59	0.3
third child	25.5	29.6	21.9	-35	0.5
fourth or later child	18.0	16.7	17.9	-50	0.3
missing cases	2.5	1.9	4.0		

Table I-13

Educational level of the parents and the chance of reaching the finals.

Educational level of the parents (or of the parent with the highest educational level):	Number of: pupils who completed primary school in 1976/77 (p)	finalists (adjusted for missing cases) (f)	The chance of reaching the finals (100 * f / p)		
			total	finals in: Po- math lish	
Total	532,989	4,995	.937	.41	.53
university	35,177 *	1,851	5.262	2.21	3.05
higher-level secondary	69,289 *	1,933	2.790	1.23	1.56
lower-level secondary	56,497 *	291	.515	.25	.27
primary	372,026 *	920	.247	.12	.13

* estimated

Sources: Rocznik statystyczny 1978, table 52.

Rocznik statystyczny szkolnictwa 1978/79, table 8.

Spis kadrowy 1977, table 19.

Table I-13a

Educational level of the parents and success at the finals.

A. TOTAL

Educational level of the parents (or of the parent with the highest level of education)	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
university education	34.4	48.8	26.3	42	2.4
both parents	15.0	24.7	10.0	53	3.3
one parent	19.4	24.1	16.3	32	1.9
non-academic tertiary or incomplete university	4.9	5.7	4.9	21	1.5
both parents	1.4	1.4	1.6	7	1.2
one parent	3.5	4.3	3.3	26	1.7
higher-level secondary	31.0	30.9	33.5	10	1.2
both parents	19.0	21.5	18.4	21	1.5
one parent	12.0	9.4	15.1	-10	0.8
lower-level or incomplete higher-level secondary					
both parents or one	5.4	2.5	8.3	-43	0.4
primary	17.1	10.5	25.1	-29	0.6
complete, both or one	15.5	9.8	22.9	-28	0.6
both incomplete	1.6	.7	2.2	-40	0.4
missing cases	7.2	1.6	2.0		

Table I-13a

Educational level of the parents and success at the finals.

B. PLACE OF RESIDENCE

Educational level of the parents (or of the parent with the highest level of education)	Finalists:			SR	SQ
	total	high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	1628	840	269	51	3.1
university education		63.7	47.8	61	4.1
both parents		36.2	25.3	63	4.4
one parent		27.5	22.3	59	3.9
non-academic tertiary or incomplete university		3.5	3.3	53	3.3
both parents		0.4	1.1	3 3	
one parent		3.1	2.2	63	4.4
higher-level secondary		25.2	32.7	41	2.4
both parents		19.2	20.4	49	2.9
one parent		6.0	12.3	20	1.5
lower-level or incomplete higher-level secondary					
both parents or one		1.0	6.3	8 17	
primary		4.2	7.4	27	1.8
complete, both or one		4.0	7.4	26	1.7
both incomplete		.2	0	2 0	
missing cases		2.5	2.6		
Other town.					
Absolute number (=100%)	1688	504	437	7	1.2
university education		40.7	29.8	22	1.6
both parents		16.7	9.4	34	2.0
one parent		24.0	20.4	15	1.4
non-academic tertiary or incomplete university		6.0	4.1	25	1.7
both parents		1.6	.9	8 4	
one parent		4.4	3.2	22	1.6
higher-level secondary		40.1	43.0	4	1.1
both parents		27.2	25.4	10	1.2
one parent		12.9	17.6	-8	0.8
lower-level or incomplete higher-level secondary					
both parents or one		4.0	8.2	-29	0.6
primary		8.5	13.1	-14	0.8
complete, both or one		8.1	12.4	-14	0.8
both incomplete		.4	.7	2 3	
missing cases		.8	1.8		

Table I-13a

Educational level of the parents and success at the finals.

B. PLACE OF RESIDENCE

Educational level of the parents (or of the parent with the highest level of education)	Finalists:			SR	SQ
	total	high scorers	low scorers		
Village.					
Absolute number (=100%)	1344	320	554	-27	0.6
university education		22.2	13.2	-1	1
both parents		6.9	3.1	13	1.3
one parent		15.3	10.1	-7	0.9
non-academic tertiary or incomplete university		11.0	6.3	0	1
both parents		4.1	2.3	13 13	
one parent		6.9	4.0	0	1
higher-level secondary		31.6	26.3	-18	0.7
both parents		18.8	11.9	-5	0.9
one parent		12.8	14.4	-32	0.5
lower-level or incomplete higher-level secondary					
both parents or one		4.4	9.2	-57	0.3
primary		30.3	43.1	-42	0.4
complete, both or one		27.8	38.6	-41	0.4
both incomplete		2.5	4.5	-52	0.3
missing cases		.6	1.8		

Table I-13a

Educational level of the parents and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Educational level of the parents (or of the parent with the highest level of education)	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
university education	62.0	38.2	56.5	29	1.8
both parents	27.4	35.6	23.3	39	2.3
one parent	34.6	32.6	33.2	19	1.5
non-academic tertiary or incomplete university	16.6	15.5	18.7	11	1.2
both parents	5.9	5.1	6.9	5	1.1
one parent	10.7	10.4	11.8	14	1.3
higher-level secondary	19.6	15.5	22.9	1	1
both parents	14.8	10.9	16.4	0	1
one parent	4.8	4.6	6.5	3	1.1
lower-level or incomplete higher-level secondary					
both parents or one	.3	0	0	0 0	
primary	.1	0	0	0 0	
complete, both or one	.1	0	0	0 0	
both incomplete	0	0	0	0 0	
missing cases	1.4	.8	1.9		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
university education	45.7	55.4	36.0	50	3.0
both parents	19.8	27.7	12.6	62	4.3
one parent	25.9	27.7	23.4	40	2.3
non-academic tertiary or incomplete university	2.9	3.3	2.6	42	2.4
both parents	.3	.4	.4	4 2	
one parent	2.6	2.9	2.2	44	2.6
higher-level secondary	47.4	38.3	56.7	14	1.3
both parents	31.3	29.6	34.1	26	1.7
one parent	16.1	8.7	22.6	-14	0.8
lower-level or incomplete higher-level secondary					
both parents or one	1.5	.6	2.8	6 14	
primary	1.1	1.1	.8	11 4	
complete, both or one	1.1	1.1	.8	11 4	
both incomplete	0	0	0	0 0	
missing cases	1.3	1.2	1.0		

Table I-13a

Educational level of the parents and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Educational level of the parents (or of the parent with the highest level of education)	Finalists:			SR	SQ
	total	high scorers	low scorers		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
university education	.2	0	.6	0 2	
both parents	.2	0	.6	0 2	
one parent	0	0	0	0 0	
non-academic tertiary or incomplete university	.2	.4	0	1 0	
both parents	0	0	0	0 0	
one parent	.2	.4	0	1 0	
higher-level secondary	22.5	31.7	21.2	2	1
both parents	6.6	10.7	5.7	14	1.3
one parent	15.9	21.0	15.5	-3	0.9
lower-level or incomplete higher-level secondary					
both parents or one	22.2	14.2	23.9	-42	0.4
primary	52.2	50.7	52.3	-19	0.7
complete, both or one	49.5	46.4	49.9	-21	0.6
both incomplete	2.7	4.3	2.4	10 8	
missing cases	2.7	3.0	2.1		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
university education	1.4	3.7	.7	2 1	
both parents	0	0	0	0 0	
one parent	1.4	3.7	.7	2 1	
non-academic tertiary or incomplete university	.8	1.9	0	1 0	
both parents	0	0	0	0 0	
one parent	.8	1.9	0	1 0	
higher-level secondary	6.1	5.6	4.6	3 7	
both parents	.8	0	0	0 0	
one parent	5.3	5.6	4.6	3 7	
lower-level or incomplete higher-level secondary					
both parents or one	5.0	5.6	6.6	3 10	
primary	85.3	83.3	86.7	-49	0.3
complete, both or one	71.7	79.6	74.8	-45	0.4
both incomplete	13.6	3.7	11.9	2 18	
missing cases	1.4	0	1.3		

Table 1-14

Socio-occupational background and the chance of reaching the finals.

Socio-occupational position of the parents:	Number of: pupils who completed primary school in 1976/77 (p)	finalists (adjusted for missing cases) (f)	The chance of reaching the finals ($100 * f / p$)		
			total	finals in: Po- math lish	
Total	532,989	4,995	.937	.41	.53
employees	92,740	3,448	3.718	1.61	2.11
manual workers	268,627	999	.372	.15	.22
farmers	139,634	371	.266	.13	.13
others	31,979	177	.553	.31	.24

Source: Rocznik statystyczny 1978, table 552.

Table I-14a

Socio-occupational position of the parents and success at the finals.

A. TOTAL

Socio-occupational position of the parents:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
teachers:					
both	7.1	8.4	6.3	28	1.8
one	13.6	15.2	14.4	17	1.4
other employees:					
other professions:					
both	9.1	16.0	5.1	61	4.1
one	12.3	16.7	9.4	40	2.3
other employees:					
both	13.7	16.0	13.0	24	1.6
one	11.4	9.8	12.1	3	1.1
manual workers:					
both	9.4	7.2	11.2	-8	0.9
one, the other has no job	7.2	5.0	11.2	-26	0.6
one, the other farmer	2.9	1.7	4.2	-31	0.5
farmers:					
both	7.2	3.2	12.0	-48	0.4
missing cases	6.1	.7	1.0		

Table I-14a

Socio-occupational position of the parents and success at the finals.

B. PLACE OF RESIDENCE

Socio-occupational position of the parents:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Warsaw.					
Absolute number (=100%)	712	489	68	76	7.2
teachers	15.9	16.6	14.7	78	8.1
other employees	72.9	74.2	73.5	76	7.3
manual workers	9.7	9.0	10.3	73	6.4
farmers	.4	0	1.5	0 1	
missing cases	1.1	1.2	0		
Capital of another province.					
Absolute number (=100%)	916	351	201	27	1.7
teachers	21.3	24.0	20.0	35	2.1
other employees	65.1	66.6	60.0	32	1.9
manual workers	13.1	9.4	19.5	-8	0.9
farmers	.3	0	.5	0 1	
missing cases	.2	0	0		
Other town.					
Absolute number (=100%)	1688	504	437	7	1.2
teachers	24.3	26.8	22.7	15	1.4
other employees	52.1	56.5	50.2	13	1.3
manual workers	21.5	15.9	25.0	-15	0.7
farmers	1.5	.2	1.4	1 6	
missing cases	.6	.6	.7		
Village.					
Absolute number (=100%)	1344	320	554	-27	0.6
teachers	22.1	28.8	20.5	-11	0.8
other employees	22.3	30.0	19.3	-5	0.9
manual workers	30.5	24.0	32.3	-40	0.4
farmers	23.9	16.6	26.2	-46	0.4
missing cases	1.2	.6	1.6		

Table I-15

The finalists' place to study and success at the finals.

A. TOTAL

Kind of the finalist's place to study at home:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
separate room	53.8	61.2	53.3	21	1.5
work-corner	33.5	32.5	37.5	7	1.1
no separate place	5.3	3.7	7.1	-18	0.7
missing cases	7.4	2.6	2.1		

Table 1-15

The finalists' place to study and success at the finals.

B. PLACE OF RESIDENCE

Kind of the finalist's place to study at home:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Capital of a province. Absolute number (=100%)	1628	840	269	51	3.1
separate room		66.9	66.9	51	3.1
work-corner		28.2	27.9	52	3.2
no separate place		2.3	2.6	19	7
missing cases		2.6	2.6		
Other town. Absolute number (=100%)	1688	504	437	7	1.2
separate room		58.5	58.6	7	1.2
work-corner		35.5	33.2	10	1.2
no separate place		4.2	7.1	-19	0.7
missing cases		1.8	1.1		
Village. Absolute number (=100%)	1344	320	554	-27	0.6
separate room		50.3	42.4	-19	0.7
work-corner		39.1	45.7	-34	0.5
no separate place		6.6	9.4	-42	0.4
missing cases		4.1	2.5		

Table I-15

The finalists' place to study and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Kind of the finalist's place to study at home:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
separate room	62.0	62.6	60.3	22	1.6
work-corner	33.5	33.1	34.4	18	1.4
no separate place	2.9	3.1	3.1	12	8
missing cases	1.6	1.3	2.3		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
separate room	65.4	67.0	66.1	33	2.0
work-corner	29.0	28.1	28.1	32	2.0
no separate place	3.6	2.5	4.0	9	1.2
missing cases	2.0	2.5	1.8		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
separate room	41.5	41.2	40.0	-17	0.7
work-corner	45.6	45.5	45.7	-18	0.7
no separate place	10.6	9.4	12.8	-32	0.5
missing cases	2.3	3.9	1.5		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
separate room	30.5	33.3	29.1	-42	0.4
work-corner	53.5	53.7	55.6	-49	0.3
no separate place	12.7	5.6	11.9	3	18
missing cases	3.3	7.4	3.3		

Table I-16

Home library and success at the finals.

A. TOTAL

Number of books at home:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
more than 100	47.4	59.2	42.9	29	1.8
51 - 100	17.9	16.9	20.2	5	1.1
up to 50	15.0	10.3	20.3	-20	0.7
none	7.5	4.3	11.2	-32	0.5
missing cases	12.1	9.3	5.4		

Table 1-16
Home library and success at the finals.

B. PLACE OF RESIDENCE

Number of books at home:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	1628	840	269	51	3.1
more than 100		66.8	63.2	53	3.3
51 - 100		12.1	18.2	35	2.1
up to 50		5.6	8.9	32	2
none		2.3	3.0	19	8
missing cases		13.2	6.7		
Other town.					
Absolute number (=100%)	1688	504	437	7	1.2
more than 100		61.3	51.7	16	1.4
51 - 100		20.6	23.3	1	1
up to 50		9.7	15.3	-16	0.7
none		3.2	4.3	-9	0.8
missing cases		5.2	5.3		
Village.					
Absolute number (=100%)	1344	320	554	-27	0.6
more than 100		36.3	26.2	-11	0.8
51 - 100		23.1	18.6	-16	0.7
up to 50		23.4	29.8	-37	0.5
none		11.6	20.6	-51	0.3
missing cases		5.6	4.9		

Table 1-16
Home library and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Number of books at home:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
more than 100	62.8	64.4	58.4	25	1.7
51 - 100	16.2	14.5	17.6	11	1.2
up to 50	10.3	9.2	12.6	4	1.1
none	2.9	3.1	3.4	12 9	
missing cases	7.8	8.9	8.0		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
more than 100	61.3	66.1	59.1	37	2.2
51 - 100	17.8	15.1	21.2	16	1.4
up to 50	9.7	7.1	10.4	14	1.3
none	3.7	1.8	4.6	-12	0.8
missing cases	7.5	9.9	4.6		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
more than 100	25.9	34.3	22.7	3	1.1
51 - 100	25.3	26.6	23.3	-11	0.8
up to 50	29.4	21.5	33.7	-39	0.4
none	13.9	11.2	15.5	-33	0.5
missing cases	5.5	6.4	4.8		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
more than 100	9.4	7.4	9.3	4 14	
51 - 100	17.2	24.1	15.2	-28	0.6
up to 50	34.1	31.5	35.1	-51	0.3
none	34.1	29.6	37.1	-56	0.3
missing cases	5.3	7.4	3.3		

Table I-17

Collections and success at the finals.

A. TOTAL

Field of the finalist's collection(s):	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
science	14.3	17.3	14.5	22	1.6
technology	4.5	5.5	3.9	30	1.9
art	4.3	4.8	5.0	12	1.3
other fields	71.0	78.0	74.0	16	1.4
the finalist has no collection	12.4	12.9	15.1	6	1.1
missing cases	10.8	5.1	5.6		

Table 1-17
Collections and success at the finals.

B. PLACE OF RESIDENCE

Field of the finalist's collection(s):	Finalists: total	high scorers	low scorers	SR	SQ
Capital of a province. Absolute number (=100%)	1628	840	269	51	3.1
science		17.9	16.7	54	3.3
technology		5.8	4.8	58	3.8
art		5.1	8.9	28	1.8
other fields		79.0	79.2	51	3.1
the finalist has no collection		12.9	15.6	44	2.6
missing cases		6.4	1.9		
Other town. Absolute number (=100%)	1688	504	437	7	1.2
science		17.3	15.8	12	1.3
technology		7.1	4.8	26	1.7
art		5.0	5.3	4	1.1
other fields		76.6	73.9	9	1.2
the finalist has no collection		12.5	14.0	2	1
missing cases		3.2	5.0		
Village. Absolute number (=100%)	1344	320	554	-27	0.6
science		15.9	12.5	-15	0.7
technology		1.9	2.7	6 15	
art		3.8	2.9	12 16	
other fields		76.9	71.7	-23	0.6
the finalist has no collection		13.8	15.7	-33	0.5
missing cases		4.7	7.8		

Table I-17
Collections and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Field of the finalist's collection(s):	Finalists: total	high scorers	low scorers	SR	SQ
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
science	16.1	18.3	16.0	26	1.7
technology	4.6	4.3	3.8	17 10	
art	4.5	5.3	3.8	35	2.1
other fields	82.4	86.8	78.6	25	1.7
the finalist has no collection	8.9	8.1	12.6	-2	1
missing cases	4.4	4.3	4.2		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
science	16.0	16.8	16.6	33	2
technology	5.8	6.1	5.4	37	2.2
art	5.3	4.8	7.0	15	1.3
other fields	76.7	78.5	79.2	32	1.9
the finalist has no collection	12.3	12.7	13.0	31	1.9
missing cases	4.7	5.1	3.4		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
science	13.8	19.7	13.1	2	1
technology	3.7	6.4	3.0	15 10	
art	4.0	4.3	3.9	10 13	
other fields	67.9	66.1	67.8	-19	0.7
the finalist has no collection	18.0	19.7	18.2	-14	0.8
missing cases	6.6	3.9	6.9		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
science	10.5	7.4	9.3	4 14	
technology	1.4	0	1.3	0 2	
art	2.2	1.9	3.3	1 5	
other fields	62.6	68.5	62.9	-44	0.4
the finalist has no collection	15.8	14.8	19.2	-57	0.3
missing cases	13.3	13.0	11.3		

Table I-18

Help given to parents and success at the finals.

A. TOTAL

Time daily spent by the finalist helping parents:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
more than 4 hours	3.1	1.9	3.8	-20	0.7
3,1 - 4 hours	6.7	5.3	9.0	-12	0.8
2,1 - 3 hours	18.6	15.7	23.1	-5	0.9
1 - 2 hours	54.8	63.3	52.9	23	1.6
up to 1 hour	7.2	7.9	7.6	16	1.4
none	.9	1.0	.9	17	11
missing cases	8.7	4.9	2.7		

Table I-18

Help given to parents and success at the finals.

B. PLACE OF RESIDENCE

Time daily spent by the finalist helping parents:	Finalists: total	high scorers	low scorers	SR	SQ
Capital of a province. Absolute number (=100%)	1628	840	269	51	3.1
more than 4 hours		1.1	3.0	9 8	
3.1 - 4 hours		3.8	6.3	31	1.9
2.1 - 3 hours		14.8	13.4	55	3.4
1 - 2 hours		63.6	58.7	54	3.4
up to 1 hour		7.5	12.3	31	1.9
none		1.1	1.9	9 5	
missing cases		8.2	4.5		
 Other town.					
Absolute number (=100%)	1688	504	437	7	1.2
more than 4 hours		1.4	3.2	7 14	
3.1 - 4 hours		4.8	6.6	-9	0.8
2.1 - 3 hours		13.5	22.4	-18	0.7
1 - 2 hours		67.9	57.4	15	1.4
up to 1 hour		10.3	7.6	22	1.6
none		1.0	1.1	5 5	
missing cases		1.2	1.6		
 Village.					
Absolute number (=100%)	1344	320	554	-27	0.6
more than 4 hours		5.0	4.7	-24	0.6
3.1 - 4 hours		10.0	12.1	-35	0.5
2.1 - 3 hours		21.3	28.3	-40	0.4
1 - 2 hours		55.6	46.6	-18	0.7
up to 1 hour		5.3	5.4	-28	0.6
none		.9	.2	3 1	
missing cases		1.9	2.7		

Table 1-18

Help given to parents and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Time daily spent by the finalist helping parents:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
more than 4 hours	2.7	2.3	3.1	9 8	
3,1 - 4 hours	6.5	5.1	8.8	-7	0.9
2,1 - 3 hours	16.0	13.0	16.4	9	1.2
1 - 2 hours	63.0	68.2	60.3	26	1.7
up to 1 hour	8.3	7.9	8.8	15	1.3
none	.9	.8	.4	3 1	
missing cases	2.6	2.8	2.3		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
more than 4 hours	2.2	1.4	2.8	14 14	
3,1 - 4 hours	5.2	3.7	7.2	0	1.0
2,1 - 3 hours	17.0	14.6	19.0	20	1.5
1 - 2 hours	61.6	65.4	56.9	38	2.2
up to 1 hour	8.5	8.1	9.0	27	1.8
none	1.2	1.0	1.6	10 8	
missing cases	4.3	5.7	3.4		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
more than 4 hours	3.7	1.7	3.6	4 12	
3,1 - 4 hours	8.9	9.0	8.4	-14	0.8
2,1 - 3 hours	26.1	22.7	29.3	-30	0.5
1 - 2 hours	50.7	51.5	49.0	-15	0.7
up to 1 hour	6.6	9.0	7.2	-7	0.9
none	.6	.9	.3	2 1	
missing cases	3.4	5.2	2.4		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
more than 4 hours	10.5	9.3	9.3	5 14	
3,1 - 4 hours	16.1	20.4	15.2	-35	0.5
2,1 - 3 hours	30.5	24.1	35.1	-61	0.2
1 - 2 hours	39.1	44.4	35.8	-38	0.4
up to 1 hour	3.0	1.9	2.6	1 4	
none	.3	0	.7	0 1	
missing cases	.6	0	1.3		

Table I-19a

Free time and success at the finals.

A. TOTAL

Daily amount of free time:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
more than 4 hours	9.5	13.1	8.0	37	2.2
3,1 - 4 hours	12.3	13.7	11.4	23	1.6
2,1 - 3 hours	23.4	24.6	25.3	12	1.3
1 - 2 hours	33.6	30.6	39.7	1	1
up to 1 hour	10.5	10.9	10.7	15	1.3
no free time	2.0	2.2	2.1	17	1.4
missing cases	8.6	4.8	2.8		

Table I-19a
Free time and success at the finals.

B. PLACE OF RESIDENCE

Daily amount of free time:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Capital of a province. Absolute number (=100%)	1628	840	269	51	3.1
more than 4 hours		16.9	13.0	60	4.1
3,1 - 4 hours		15.6	16.4	50	3
2,1 - 3 hours		21.8	25.3	46	2.7
1 - 2 hours		26.1	30.9	45	2.6
up to 1 hour		10.2	6.7	65	4.8
no free time		2.5	2.6	21 7	
missing cases		6.9	5.2		
Other town. Absolute number (=100%)	1688	504	437	7	1.2
more than 4 hours		10.5	7.1	26	1.7
3,1 - 4 hours		13.5	13.5	7	1.2
2,1 - 3 hours		30.8	28.4	11	1.3
1 - 2 hours		31.9	36.8	0	1
up to 1 hour		9.3	10.8	0	1
no free time		1.8	2.1	9 9	
missing cases		2.2	1.4		
Village. Absolute number (=100%)	1344	320	554	-27	0.6
more than 4 hours		7.2	6.3	-21	0.7
3,1 - 4 hours		9.1	7.4	-17	0.7
2,1 - 3 hours		22.2	22.9	-28	0.6
1 - 2 hours		40.6	46.2	-33	0.5
up to 1 hour		15.3	12.6	-18	0.7
no free time		2.2	1.8	7 10	
missing cases		3.4	2.7		

Table I-19a
Free time and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Daily amount of free time:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
more than 4 hours	10.7	12.7	9.5	33	2
3,1 - 4 hours	13.4	14.0	13.0	24	1.6
2,1 - 3 hours	26.7	26.2	24.8	23	1.6
1 - 2 hours	35.6	32.3	39.7	10	1.2
up to 1 hour	9.2	8.9	8.4	23	1.6
no free time	1.2	1.3	1.1	5 3	
missing cases	3.2	4.6	3.4		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
more than 4 hours	11.5	13.7	9.4	48	2.9
3,1 - 4 hours	15.1	14.6	13.2	37	2.2
2,1 - 3 hours	25.0	24.6	27.3	28	1.8
1 - 2 hours	31.9	29.1	34.5	25	1.7
up to 1 hour	10.1	10.6	10.2	34	2
no free time	2.6	2.5	2.6	30	1.8
missing cases	3.8	4.9	2.8		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
more than 4 hours	8.2	13.7	7.2	14	1.3
3,1 - 4 hours	10.3	11.2	10.1	-13	0.8
2,1 - 3 hours	23.8	24.0	23.9	-18	0.7
1 - 2 hours	40.7	31.8	44.2	-33	0.5
up to 1 hour	11.7	12.0	11.0	-14	0.8
no free time	2.3	3.0	1.8	7 6	
missing cases	3.0	4.3	1.8		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
more than 4 hours	3.6	3.7	3.3	2 5	
3,1 - 4 hours	5.0	7.4	5.3	4 8	
2,1 - 3 hours	19.9	11.1	22.5	-70	0.2
1 - 2 hours	44.3	44.4	46.4	-49	0.3
up to 1 hour	22.2	29.6	16.6	-22	0.6
no free time	2.2	1.9	2.6	1 4	
missing cases	2.8	1.9	3.3		

Table I-19b

Major free time activities and success at the finals.

A. TOTAL

Kind of the finalist's major free time activity:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
intellectual activities	71.3	75.9	76.6	13	1.3
sports	54.4	56.7	56.3	14	1.3
entertainment	43.5	44.2	45.8	12	1.3
technical activities	8.6	10.0	9.2	18	1.4
artistic activities	6.8	8.7	6.4	28	1.8
gregarious activities	6.0	6.3	7.5	5	1.1
volunteer activities	.9	.7	1.0	12 13	
other activities	4.1	3.7	4.4	6	1.1
no activities	.2	.2	.2	3 3	
no free time	1.0	1.2	.6	20 8	
missing cases	7.6	2.9	2.1		

Table I-19b
Major free time activities and success at the finals.

B. PLACE OF RESIDENCE

Kind of the finalist's major free time activity:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Capital of a province. Absolute number (=100%)	1628	840	269	51	3.1
intellectual activities		77.0	78.4	51	3.1
sports		57.1	56.9	52	3.1
entertainment		43.6	41.3	53	3.3
technical activities		9.2	14.5	33	2
artistic activities		8.1	7.8	53	3.2
gregarious activities		5.8	8.6	36	2.1
volunteer activities		.7	3.0	6 8	
other activities		3.6	3.3	54	3.3
no activities		.4	.7	3 2	
no free time		1.3	.4	11 1	
missing cases		4.6	1.9		
Other town. Absolute number (=100%)	1688	504	437	7	1.2
intellectual activities		75.2	76.4	6	1.1
sports		59.9	53.3	13	1.3
entertainment		46.4	49.7	4	1.1
technical activities		12.1	7.1	33	2
artistic activities		9.5	6.9	23	1.6
gregarious activities		6.2	7.3	-2	1
volunteer activities		.8	.2	4 1	
other activities		3.6	4.3	-3	0.9
no activities		.2	0	1 0	
no free time		1.0	.7	5 3	
missing cases		.8	2.5		
Village. Absolute number (=100%)	1344	320	554	-27	0.6
intellectual activities		74.1	75.8	-28	0.6
sports		50.3	58.5	-34	0.5
entertainment		41.9	44.9	-30	0.5
technical activities		8.8	8.3	-24	0.6
artistic activities		9.1	5.4	-2	1
gregarious activities		7.8	7.2	-23	0.6
volunteer activities		.3	.7	1 4	
other activities		4.1	5.1	-37	0.5
no activities		0	0	0 0	
no free time		1.3	.7	4 4	
missing cases		3.5	2.0		

Table I-19b

Major free time activities and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Kind of the finalist's major free time activity:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
intellectual activities	77.3	79.1	75.2	22	1.6
sports	59.5	57.5	59.2	19	1.5
entertainment	47.1	45.8	43.5	22	1.6
technical activities	7.4	8.4	8.0	22	1.6
artistic activities	9.2	12.2	7.3	43	2.5
gregarious activities	4.6	3.1	6.9	-20	0.7
volunteer activities	1.4	.3	2.3	1 6	
other activities	4.4	3.6	5.7	14 15	
no activities	.1	.3	0	1 0	
no free time	.4	0	.4	0 1	
missing cases	1.5	1.8	1.9		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
intellectual activities	75.5	76.6	76.6	32	2.0
sports	57.4	57.5	53.9	35	2.1
entertainment	45.9	44.1	46.3	30	1.9
technical activities	10.4	10.7	11.6	28	1.8
artistic activities	7.7	8.1	7.6	35	2.1
gregarious activities	6.8	7.8	7.0	37	2.2
volunteer activities	.9	.5	1.2	5 6	
other activities	4.6	4.0	3.6	37	2.2
no activities	.2	.2	.4	2 2	
no free time	1.2	1.4	.6	14 3	
missing cases	2.6	3.2	1.8		

Table I-19b

Major free time activities and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Kind of the finalist's major free time activity:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
intellectual activities	74.2	70.4	78.8	-23	0.6
sports	57.1	54.1	58.2	-21	0.6
entertainment	45.6	43.3	45.7	-20	0.7
technical activities	9.5	10.3	8.1	-6	0.9
artistic activities	5.1	6.0	6.0	-18	0.7
gregarious activities	6.6	6.0	8.4	-33	0.5
volunteer activities	.9	2.1	.3	5 1	
other activities	4.1	3.4	3.9	8 13	
no activities	.2	.4	0	1 0	
no free time	1.3	2.1	.9	5 3	
missing cases	2.4	2.6	2.7		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
intellectual activities	70.6	66.7	72.8	-51	0.3
sports	52.4	51.9	53.6	-49	0.3
entertainment	43.5	40.7	47.0	-53	0.3
technical activities	6.1	9.3	6.0	5 9	
artistic activities	3.0	5.6	2.6	3 4	
gregarious activities	7.5	5.6	8.6	3 13	
volunteer activities	0	0	0	0 0	
other activities	3.6	0	6.6	0 10	
no activities	.3	0	0	0 0	
no free time	1.4	1.9	.7	1 1	
missing cases	3.0	3.7	2.6		

Table I-20

Interests and success at the finals.

A. TOTAL

The finalist is interested in:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
the subject of the contest as well as in other matters	53.7	55.8	56.7	13	1.3
the subject of the contest only	19.5	22.3	18.6	23	1.6
other subjects than that of the competition	18.1	17.6	21.6	4	1.1
none of the school subjects	.6	.8	.6	13	.8
missing cases	8.1	3.5	2.5		

Table I-20
Interests and success at the finals.

B. PLACE OF RESIDENCE

The finalist is interested in:	Finalists: total	high scorers	low scorers	SR	SQ
Capital of a province. Absolute number (=100%)	1628	840	269	51	3.1
the subject of the contest as well as in other matters		53.3	60.6	47	2.7
the subject of the contest only		24.9	16.4	65	1.8
other subjects than that of the competition		16.4	19.7	45	1.1
none of the school subjects		.6	.4	51	
missing cases		4.8	3.0		
Other town. Absolute number (=100%)	1688	504	437	7	1.2
the subject of the contest as well as in other matters		59.5	58.6	8	1.2
the subject of the contest only		19.4	17.4	13	1.3
other subjects than that of the competition		18.1	21.1	-1	1
none of the school subjects		1.4	.7	71	3
missing cases		1.6	2.3		
Village. Absolute number (=100%)	1344	320	554	-27	0.6
the subject of the contest as well as in other matters		55.9	53.4	-25	0.6
the subject of the contest only		20.3	20.6	-27	0.6
other subjects than that of the competition		20.0	22.9	-33	0.5
none of the school subjects		.6	.7	21	4
missing cases		3.1	2.3		

Table I-20
Interests and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

The finalist is interested in:	Finalists: total	high scorers	low scorers	SR	SQ
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
the subject of the contest and other matters	57.1	56.0	59.2	17	1.4
the subject of the contest only	20.4	22.1	16.8	33	2
other subjects	19.4	18.1	21.8	11	1.2
none of the school subjects	.5	.5	.4	2 1	
missing cases	2.6	3.3	1.9		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
the subject of the contest and other matters	57.7	56.5	57.7	31	1.9
the subject of the contest only	19.4	21.5	16.2	44	2.6
other subjects	19.2	17.4	22.4	21	1.5
none of the school subjects	.7	1.0	.6	10 3	
missing cases	2.9	3.5	3.0		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
the subject of the contest and other matters	55.8	51.5	55.8	-22	0.6
the subject of the contest only	22.3	26.6	20.6	-5	0.9
other subjects	18.8	19.3	20.9	-22	0.6
none of the school subjects	.4	.4	.6	1 2	
missing cases	2.7	2.1	2.1		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
the subject of the contest and other matters	52.9	61.1	53.6	-42	0.4
the subject of the contest only	24.4	20.4	23.8	-53	0.3
other subjects	18.0	13.0	18.5	-60	0.3
none of the school subjects	1.1	1.9	1.3	1 2	
missing cases	3.6	3.7	2.6		

Table I-20b

Out of school interests and success at the finals.

A. TOTAL

Kind of the finalist's out of school interests:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
intellectual	39.6	46.6	38.2	23	1.6
sports	36.8	35.5	40.8	7	1.1
entertainment	25.5	26.6	27.6	12	1.3
technical	7.3	8.6	7.4	21	1.5
artistic	8.7	10.7	8.6	24	1.6
gregarious	1.5	1.1	2.0	-16	0.7
volunteer activities	1.4	1.5	1.7	9	1.2
other interests	5.7	5.3	7.1	-1	1
no interests	1.7	2.1	2.2	11	1.3
missing cases	12.5	7.1	7.5		

Table I-20b

Out of school interests and success at the finals.

B. PLACE OF RESIDENCE

Kind of the finalist's out of school interests:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Capital of a province. Absolute number (=100%)	1628	840	269	51	3.1
intellectual		48.1	43.9	55	3.4
sports		33.1	43.5	41	2.4
entertainment		28.1	28.3	51	3.1
technical		8.2	10.8	41	2.4
artistic		9.6	7.8	59	3.9
gregarious		1.5	1.1	13 3	
volunteer activities		1.5	3.3	13 9	
other interests		4.6	5.9	42	2.4
no interests		2.5	1.5	21 4	
missing cases		9.3	5.2		
Other town. Absolute number (=100%)	1688	504	437	7	1.2
intellectual		47.6	38.7	17	1.4
sports		38.7	38.7	7	1.2
entertainment		25.4	28.4	2	1
technical		11.1	7.3	27	1.8
artistic		11.3	9.2	18	1.4
gregarious		.6	1.8	3 8	
volunteer activities		1.6	.7	8 3	
other interests		5.4	8.9	-18	0.7
no interests		1.4	1.8	7 8	
missing cases		4.0	8.2		
Village. Absolute number (=100%)	1344	320	554	-27	0.6
intellectual		40.6	35.0	-20	0.7
sports		37.2	41.2	-31	0.5
entertainment		24.4	26.7	-31	0.5
technical		5.6	5.8	-28	0.6
artistic		12.8	8.5	-7	0.9
gregarious		.9	2.5	3 14	
volunteer activities		1.3	1.6	4 9	
other interests		7.2	6.1	-19	0.7
no interests		2.2	2.9	7 16	
missing cases		6.3	8.0		

Table I-20b
Out of school interests and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Kind of the finalist's out of school interests:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
intellectual	41.0	45.5	34.7	33	2
sports	41.3	39.9	45.4	14	1.3
entertainment	26.0	25.7	26.0	20	1.5
technical	7.7	9.7	8.4	27	1.7
artistic	9.8	10.9	8.8	30	1.9
gregarious	2.1	1.3	3.1	5 8	
volunteer activities	1.5	1.0	1.5	4 4	
other interests	4.8	4.1	7.3	-9	0.8
no interests	1.2	1.3	1.5	5 4	
missing cases	7.1	5.3	6.9		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
intellectual	46.5	49.6	44.5	37	2.2
sports	36.6	33.6	37.5	27	1.8
entertainment	28.5	28.5	29.1	31	1.9
technical	8.0	8.0	8.6	29	1.8
artistic	9.8	10.9	9.6	38	2.2
gregarious	1.4	1.0	1.8	10 9	
volunteer activities	1.6	1.9	2.0	19 10	
other interests	6.3	5.2	6.6	21	1.5
no interests	1.8	2.1	2.0	33	2
missing cases	6.7	7.4	6.2		

Table I-20b

Out of school interests and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Kind of the finalist's out of school interests:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
intellectual	35.3	39.9	33.1	-9	0.8
sports	40.4	35.2	40.9	-25	0.6
entertainment	24.5	19.7	26.6	-32	0.5
technical	7.8	10.3	6.0	9	1.2
artistic	7.8	10.3	7.2	0	1
gregarious	2.0	1.7	1.5	4 5	
volunteer activities	1.5	.9	1.5	2 5	
other interests	6.8	7.3	9.3	-29	0.5
no interests	2.5	3.4	3.0	8 10	
missing cases	8.7	7.7	8.4		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
intellectual	32.1	33.3	33.8	-48	0.4
sports	42.7	42.6	43.0	-48	0.4
entertainment	26.6	25.9	29.1	-52	0.3
technical	5.8	5.6	5.3	3 8	
artistic	7.2	9.3	7.9	5 12	
gregarious	.6	0	1.3	0 2	
volunteer activities	.8	0	1.3	0 2	
other interests	6.4	9.3	4.0	5 6	
no interests	1.9	1.9	2.0	1 3	
missing cases	11.4	9.3	10.6		

Table I-22

Stimuli for the finalists' interest in the subject of the competition.

A. TOTAL

Kind of stimulus:	Finalists			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
teacher, school	57.2	56.5	63.9	8	1.2
interest out of themselves	15.7	17.3	14.0	24	1.6
family	15.5	19.4	14.2	29	1.8
mass-media, books	14.0	16.3	15.6	16	1.4
friends	1.5	1.6	1.8	8	1.2
other	2.0	2.4	1.7	31	1.9
is not interested	1.5	1.3	1.9	-4	0.9
missing cases	11.7	8.5	5.5		

Table I-22

Stimuli for the finalists' interest in the subject of the competition.

B. PLACE OF RESIDENCE

Kind of stimulus:	Finalists			SR	SQ
	total	high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	1628	840	269	51	3.1
teacher, school		52.1	65.1	43	2.5
interest out of themselves		18.2	13.8	61	4.1
family		21.5	16.7	60	4
mass-media, books		13.5	17.8	40	2.4
friends		1.8	3.0	15 8	
other		3.0	3.3	47	2.8
is not interested		1.8	4.1	15 11	
missing cases		11.9	5.9		
Other town.					
Absolute number (=100%)	1688	504	437	7	1.2
teacher, school		60.7	64.3	4	1.1
interest out of themselves		16.9	16.0	10	1.2
family		17.3	15.6	12	1.3
mass-media, books		19.0	12.6	27	1.7
friends		1.2	1.6	6 7	
other		2.0	.9	10 4	
in not interested		1.2	1.6	6 7	
missing cases		5.2	3.2		
Village.					
Absolute number (=100%)	1344	320	554	-27	0.6
teacher, school		61.6	63.0	-28	0.6
interest out of themselves		15.9	12.6	-16	0.7
family		17.2	11.9	-9	0.8
mass-media, books		19.4	16.8	-20	0.7
friends		1.9	1.4	6 8	
other		1.6	1.6	5 9	
is not interested		.3	1.1		
missing cases		5.0	7.0		

Table I-22

Stimuli for the finalists' interest in the subject of the competition.

C. SOCIO-OCCUPATIONAL BACKGROUND

Kind of stimulus:	Finalists total	high scorers	low scorers	SR	SQ
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
teacher, school	54.4	49.9	60.7	10	1.2
interest out of themselves	15.8	19.6	11.1	45	2.7
family	28.3	29.3	27.5	23	1.6
mass-media, books	17.1	19.6	14.5	34	2
friends	1.2	1.0	1.5	4 4	
other	1.8	1.8	1.9	7 5	
is not interested	1.0	.8	1.5	3 4	
missing cases	5.9	5.9	6.5		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
teacher, school	59.6	55.9	62.9	27	1.7
interest out of themselves	17.5	16.6	16.8	32	1.9
family	16.3	18.8	13.6	46	2.7
mass-media, books	14.7	16.1	17.6	28	1.8
friends	1.6	1.8	1.8	18 9	
other	2.5	2.7	2.2	41	2.4
is not interested	1.9	1.4	2.6	14 13	
missing cases	7.1	9.8	4.4		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
teacher, school	67.6	68.7	70.4	-19	0.7
interest out of themselves	15.3	17.6	10.1	9	1.2
family	8.0	6.9	9.0	-30	0.5
mass-media, books	13.7	12.9	14.6	-24	0.6
friends	1.6	.9	1.8	2 6	
other	1.5	2.6	1.5	6 5	
is not interested	1.4	2.1	1.2	5 4	
missing cases	5.3	6.9	3.3		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
teacher, school	63.2	68.7	55.6	-39	0.4
interest out of themselves	16.6	16.7	19.9	-54	0.3
family	6.4	14.8	5.3	8 8	
mass-media, books	12.2	11.1	13.2	6 20	
friends	1.7	1.9	2.6	1 4	
other	1.1	1.9	.7	1 1	
is not interested	1.4	0	2.0	0 3	
missing cases	9.4	5.6	12.6		

Table I-25

Frequency of preparation for the competition.

A. TOTAL

The finalist prepared:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
daily	16.2	18.3	16.0	20	1.5
every other day	29.6	28.7	33.1	7	1.1
less than every other day	44.1	47.5	46.7	15	1.3
not at all	2.4	2.6	2.4	18	1.4
missing cases	7.6	2.9	1.9		

Table I-25
Frequency of preparation for the competition.

B. PLACE OF RESIDENCE

The finalist prepared:	Finalists: total	high scorers	low scorers	SR	SQ
Capital of a province.					
Absolute number (=100%)	1628	840	269	51	3.1
daily		13.3	14.9	47	2.8
every other day		23.2	29.0	43	2.5
less		54.8	52.0	53	3.3
not at all		3.6	1.9	71	6
missing cases		5.1	2.2		
 Other town.					
Absolute number (=100%)	1688	504	437	7	1.2
daily		19.6	12.8	28	1.8
every other day		36.7	32.5	13	1.3
less		41.7	51.3	-3	0.9
not at all		1.6	2.1	8 9	
missing cases		.4	1.4		
 Village.					
Absolute number (=100%)	1344	320	554	-27	0.6
daily		29.1	19.0	-6	0.9
every other day		30.6	35.6	-34	0.5
less		37.5	40.4	-30	0.5
not at all		1.9	2.9	6 16	
missing cases		.9	2.2		

Table I-25
Frequency of preparation for the competition.

C. SOCIO-OCCUPATIONAL BACKGROUND

The finalist prepared:	Finalists: total	high scorers	low scorers	SR	SQ
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
daily	20.8	20.6	20.2	21	1.5
every other day	33.0	29.3	34.7	12	1.3
less	42.2	44.8	42.7	22	1.6
not at all	2.1	3.3	1.1	13 3	
missing cases	1.8	2.0	1.1		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
daily	14.9	16.3	14.6	37	2.2
every other day	29.3	26.6	29.9	27	1.7
less	50.3	51.1	50.9	32	2
not at all	3.0	2.7	2.6	33	2
missing cases	2.5	3.4	2.0		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
daily	16.8	20.6	11.9	9	1.2
every other day	33.5	35.2	37.6	-21	0.7
less	45.4	41.2	45.7	-23	0.6
not at all	2.2	1.3	3.0	3 10	
missing cases	2.2	1.7	1.8		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
daily	23.3	29.6	22.5	-36	0.5
every other day	33.2	35.2	30.5	-42	0.4
less	39.1	31.5	41.7	-57	0.3
not at all	1.4	1.9	2.6	1 4	
missing cases	3.0	1.9	2.6		

Table I-26

Help at the preparation for the competition.

A. TOTAL

The finalist was assisted at the preparation for the contest by:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
teacher, school	74.1	74.8	79.7	11	1.2
mass-media, books	27.2	30.6	30.7	14	1.3
family	12.0	14.4	10.3	30	1.8
friends	2.1	2.6	1.7	34	2
others	.3	.4	.5	7 6	
nobody	4.1	5.2	3.9	28	1.8
missing cases	8.7	4.0	3.3		

Table I-26
Help at the preparation for the competition.

B. PLACE OF RESIDENCE

The finalist was assisted at the preparation for the contest by:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	1628	840	269	51	3.1
teacher, school		69.3	77.0	48	2.8
mass-media, books		27.4	32.7	45	2.6
family		17.7	14.5	59	3.8
friends		3.3	3.7	47	2.8
others		.4	.4	3 1	
nobody		6.6	7.0	49	2.9
missing cases		6.2	3.3		
Other town.					
Absolute number (=100%)	1688	504	437	7	1.2
teacher, school		83.9	82.6	8	1.2
mass-media, books		30.6	30.4	7	1.2
family		11.7	11.9	6	1.1
friends		2.6	1.4	13 6	
others		.4	0	2 0	
nobody		3.2	3.2	7	1.1
missing cases		1.6	1.4		
Village.					
Absolute number (=100%)	1344	320	554	-27	0.6
teacher, school		75.0	78.7	-29	0.6
mass-media, books		39.1	30.0	-14	0.8
family		9.7	7.0	-11	0.8
friends		.9	1.1	3 6	
others		.6	.9	2 5	
nobody		5.3	2.9	3	1.1
missing cases		2.2	4.7		

Table I-26

Help at the preparation for the competition.

C. SOCIO-OCCUPATIONAL BACKGROUND

The finalist was assisted at the preparation for the contest by:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
teacher, school	75.9	72.5	80.5	15	1.4
mass-media, books	27.3	29.8	26.3	26	1.7
family	23.7	23.9	20.2	28	1.8
friends	1.6	1.8	1.5	7 4	
others	.6	.8	.8	3 2	
nobody	4.8	6.9	3.8	46	2.7
missing cases	2.1	3.1	.8		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
teacher, school	77.0	74.2	77.0	31	1.9
mass-media, books	30.8	31.7	36.5	26	1.7
family	12.6	13.0	12.0	36	2.1
friends	2.7	3.2	1.8	55	3.4
others	.3	.3	0	3 0	
nobody	4.4	4.5	4.6	31	1.9
missing cases	3.7	4.2	3.4		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
teacher, school	82.6	81.1	84.2	-20	0.7
mass-media, books	26.2	27.5	25.1	-14	0.8
family	5.3	7.3	4.5	6	1.
friends	2.0	2.1	2.4	5 8	
others	.3	0	.9	0 3	
nobody	4.3	5.6	3.6	13 12	
missing cases	3.5	4.3	3.6		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
teacher, school	81.2	83.3	76.2	-44	0.4
mass-media, books	25.8	31.5	31.1	-47	0.4
family	2.5	1.9	1.3	1 2	
friends	1.1	1.9	.7	1 1	
others	.6	1.9	.7	1 1	
nobody	2.5	3.8	2.6	2 4	
missing cases	5.5	1.9	6.0		

Table I-31

Professional ambitions and success at the finals.

A. TOTAL

Kind of the profession the finalist aspires to:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
in the field of:					
Polish language	8.7	11.5	8.3	29	1.8
humanities	15.1	13.9	19.3	-2	1
mathematics	8.8	10.8	6.8	35	2.1
technology	20.4	20.2	20.9	12	1.3
medicine, natural science	12.6	10.1	17.1	-12	0.8
art	2.1	2.6	2.2	21	1.5
other fields	3.3	1.9	5.6	-38	0.5
of high social status	4.6	6.4	3.9	37	2.2
does not as yet know	14.2	17.4	11.4	34	2
missing cases	10.1	5.1	4.5		
Girls.					
Absolute number (=100%)	2877	981	827	9	1.2
in the field of:					
Polish language	12.5	15.8	11.0	26	1.7
humanities	22.4	20.0	24.8	-2	1
mathematics	7.1	7.5	5.5	24	1.6
technology	12.7	12.2	12.0	10	1.2
medicine, natural science	16.7	13.9	20.3	-11	0.8
art	3.1	3.7	2.6	24	1.6
other fields	3.8	1.9	6.3	-46	0.4
of high social status	3.3	4.9	2.1	48	2.8
does not as yet know	14.4	16.3	11.4	26	1.7
missing cases	4.0	3.7	3.7		
Boys.					
Absolute number (=100%)	1843	681	433	22	1.6
in the field of:					
Polish language	4.1	5.4	2.9	48	2.8
humanities	6.0	5.4	8.4	1	1
mathematics	12.5	15.4	9.3	45	2.6
technology	35.5	31.8	37.8	14	1.3
medicine, natural science	7.9	4.6	10.8	-21	0.7
art	.8	1.0	1.5	7 6	
other fields	3.0	2.0	4.4	-15	0.7
of high social status	7.6	8.6	7.3	30	1.8
does not as yet know	15.7	18.8	11.3	45	2.6
missing cases	6.8	7.1	6.1		

Table I-31

Professional ambitions and success at the finals.

B. FINALS IN POLISH LANGUAGE

Kind of the profession the finalist aspires to:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	2071	731	608	9	1.2
in the field of:					
Polish language	18.2	22.6	15.5	27	1.8
humanities	24.3	23.8	25.7	5	1.1
mathematics	3.0	3.6	2.1	33	2
technology	12.2	9.8	12.2	-1	1
medicine, natural science	17.2	14.9	19.9	-5	0.9
art	3.3	4.0	2.6	29	1.8
other fields	4.2	2.1	5.8	-40	0.4
of high social status	3.0	4.1	2.3	36	2.1
does not as yet know	11.6	13.5	11.2	19	1.5
missing cases	3.0	1.6	2.8		
Girls.					
Absolute number (=100%)	1634	587	474	11	1.2
in the field of:					
Polish language	19.3	23.0	17.6	24	1.6
humanities	27.4	26.4	29.1	6	1.1
mathematics	2.9	2.7	2.3	16 11	
technology	8.4	6.6	7.8	3	1.1
medicine, natural science	18.4	16.3	21.5	-3	0.9
art	3.7	4.6	2.7	35	2.1
other fields	4.1	1.9	6.3	-46	0.4
of high social status	2.0	3.7	.6	22 3	
does not as yet know	11.4	13.3	10.1	24	1.6
missing cases	2.4	1.4	1.9		
Boys.					
Absolute number (=100%)	433	143	134	3	1.1
in the field of:					
Polish language	13.9	20.9	8.2	46	2.7
humanities	12.9	13.3	13.6	3	1.1
mathematics	3.3	7.1	1.4	10 2	
technology	26.8	23.0	27.7	-6	0.9
medicine, natural science	12.9	9.2	14.1	-19	0.7
art	1.9	1.5	2.3	2 3	
other fields	4.8	2.6	3.6	4 5	
of high social status	6.7	5.6	8.2	8 11	
does not as yet know	12.0	13.8	15.0	0	1
missing cases	5.3	2.6	5.9		

Table I-31

Professional ambitions and success at the finals.

B. FINALS IN MATHEMATICS

Kind of the profession the finalist aspires to:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	2637	938	639	19	1.5
in the field of:					
Polish language	2.2	2.9	1.3	54	3.4
humanities	9.3	6.2	13.1	-18	0.7
mathematics	14.5	16.5	11.6	35	2.1
technology	29.1	28.6	29.6	17	1.4
medicine, natural science	10.0	6.1	14.1	-22	0.6
art	1.4	1.5	1.7	14 11	
other fields	3.0	1.8	5.6	-36	0.5
of high social status	6.5	8.5	5.3	40	2.4
does not as yet know	17.7	20.3	11.9	43	2.5
missing cases	6.3	7.7	5.8		
Girls.					
Absolute number (=100%)	1226	395	340	7	1.2
in the field of:					
Polish language	3.4	4.8	1.7	19 6	
humanities	15.5	10.5	19.2	-23	0.6
mathematics	13.5	15.0	10.3	26	1.7
technology	18.5	21.4	18.2	16	1.4
medicine, natural science	14.2	9.7	18.2	-24	0.6
art	2.4	2.6	2.4	10 8	
other fields	3.4	1.7	6.4	7 22	
of high social status	4.9	7.4	4.1	35	2.1
does not as yet know	18.5	20.4	14.1	26	1.7
missing cases	5.4	6.9	5.3		
Boys.					
Absolute number (=100%)	1406	541	298	29	1.8
in the field of:					
Polish language	1.1	1.6	.6	9 2	
humanities	3.9	3.1	6.4	-6	0.9
mathematics	15.4	17.5	12.7	43	2.5
technology	38.3	33.8	42.7	18	1.4
medicine, natural science	6.4	3.5	9.4	-19	0.7
art	.6	.7	1.1	4 3	
other fields	2.4	1.9	4.7	10 14	
of high social status	7.9	9.4	6.7	44	2.6
does not as yet know	16.9	20.1	9.4	59	3.9
missing cases	6.9	8.3	6.4		

Table I-31

Professional ambitions and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Kind of the profession the finalist aspires to:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
in the field of:					
Polish language	8.8	11.2	8.8	31	1.9
humanities	15.8	16.5	17.6	17	1.4
mathematics	9.4	12.5	6.1	51	3.1
technology	21.6	18.1	21.4	12	1.3
medicine, natural science	14.5	10.7	18.3	-7	0.9
art	2.8	2.8	2.3	11 6	
other fields	2.5	2.0	3.4	8 9	
of high social status	4.5	5.1	3.4	20 9	
does not as yet know	15.3	15.8	14.1	25	1.7
missing cases	4.8	5.3	4.6		
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
in the field of:					
Polish language	10.7	12.3	11.8	34	2
humanities	13.1	10.7	16.4	12	1.3
mathematics	9.5	10.2	6.6	50	3
technology	21.5	20.9	19.2	36	2.1
medicine, natural science	13.3	10.3	19.4	2	1
art	2.3	2.8	2.4	38	2.3
other fields	2.5	1.5	4.0	-14	0.8
of high social status	5.7	7.2	5.0	47	2.8
does not as yet know	16.7	19.0	11.4	53	3.2
missing cases	4.7	5.2	3.6		

Table I-31

Professional ambitions and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Kind of the profession the finalist aspires to:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
in the field of:					
Polish language	7.0	10.3	4.5	23	1.6
humanities	20.0	20.6	22.7	-23	0.6
mathematics	10.6	12.4	9.0	-2	1
technology	21.8	20.2	20.3	-18	0.7
medicine, natural science	11.6	7.3	14.9	-49	0.3
art	2.0	1.7	1.8	4 6	
other fields	5.3	2.6	7.5	-61	0.2
of high social status	4.2	7.3	3.0	17 10	
does not as yet know	12.8	14.6	11.6	-7	0.9
missing cases	4.6	3.0	4.8		
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
in the field of:					
Polish language	7.8	7.4	4.6	4 7	
humanities	22.7	24.1	23.2	-46	0.4
mathematics	5.3	5.6	4.6	3 7	
technology	23.3	25.9	27.8	-50	0.3
medicine, natural science	13.0	14.8	11.3	8 17	
art	1.4	1.9	2.0	1 3	
other fields	7.8	5.6	10.6	3 16	
of high social status	3.0	0	3.3	0 5	
does not as yet know	8.0	9.3	6.6	5 10	
missing cases	7.8	5.6	6.0		

Table I-33

Notions of success in life, and success at the finals.

A. TOTAL

Notion of success in life:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Absolute number (=100%)	4995	1666	1260	14	1.3
attainments in education:					
- in secondary education	18.9	17.6	22.0	3	1.1
- at university	32.4	31.0	36.0	6	1.1
realising a desired occupation:					
- the occupation of one's own choice	21.2	20.3	25.2	3	1.1
- a good occupation from a social or moral viewpoint	7.1	8.7	7.1	24	1.6
- scientific work	5.6	6.5	4.7	29	1.8
- a materially profitable occupation	.2	.1	.1	2 1	
a distinguished position:					
- to be creative	7.6	11.2	6.6	39	2.3
- to become famous	5.0	7.1	4.2	38	2.2
- to be wealthy	.5	.6	.5	10 6	
attainments on behalf of others:					
- devote oneself to others	3.9	4.8	5.2	10	1.2
- be a good Pole	1.9	1.6	2.2	-2	1
- to serve humanity	1.7	2.3	1.5	33	2
attainments in personal life:					
- to be loved	2.5	3.5	1.2	59	3.9
- a happy family	1.9	2.6	1.4	41	2.4
- personal happiness	1.2	1.4	1.3	18	1.4
- a fascinating, active life	.8	.7	.9	12 11	
other notions	3.8	4.4	3.4	26	1.7
missing cases	9.5	4.2	3.5		
Average number of answers	1.28	1.30	1.28		

Table I-33

Notions of success in life, and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Notion of success in life:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	1033	393	262	20	1.5
attainments in education:					
in secondary education	20.2	20.6	19.1	24	1.6
at university	35.2	32.6	39.7	10	1.2
realising a desired occupation:					
occupation of own choice	21.3	16.3	25.2	-2	1
socially or morally good	7.2	7.4	6.1	29	1.8
scientific work	6.4	6.1	4.2	37	2.2
materially profitable	.3	.3	.4	1 1	
a distinguished position:					
to be creative	8.7	12.0	8.0	38	2.2
to become famous	6.5	8.4	6.1	35	2.1
to be wealthy	.8	.8	1.1	3 3	
attainments on behalf of others:					
devote oneself to others	4.5	5.1	5.0	21	1.5
be a good Pole	1.6	1.8	2.3	7 6	
to serve humanity	1.1	1.3	1.1	5 3	
attainments in personal life:					
to be loved	2.0	2.5	1.5	10 4	
a happy family	1.6	1.8	1.9	7 5	
personal happyness	1.4	1.3	.8	5 2	
fascinating, active life	.9	.8	0	3 0	
other notions	4.3	4.8	5.0	19	1.5
Other employees.					
Absolute number (=100%)	2325	975	499	32	2.0
attainments in education:					
in secondary education	17.8	15.8	19.0	24	1.6
at university	34.2	31.1	36.7	25	1.7
realising a desired occupation:					
occupation of own choice	21.8	21.3	26.3	23	1.6
socially or morally good	8.0	9.5	8.6	37	2.2
scientific work	6.4	6.7	5.2	43	2.5
materially profitable	.2	.1	0	1 0	
a distinguished position:					
to be creative	8.9	11.3	6.8	53	3.2
to become famous	5.7	6.8	5.0	45	2.6
to be wealthy	.4	.6	0	6 0	
attainments on behalf of others:					
devote oneself to others	4.0	4.2	5.6	19	1.5
be a good Pole	2.0	1.4	2.6	14 13	
to serve humanity	2.2	3.0	2.2	45	2.6
attainments in personal life:					
to be loved	3.1	3.8	1.4	68	5.3
a happy family	2.8	3.5	2.0	55	3.4
personal happyness	1.7	1.8	2.2	18 11	
fascinating, active life	.7	.8	1.2	8 6	
other notions	4.2	4.2	3.4	41	2.4

Table I-33

Notions of success in life, and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Notion of success in life:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Manual workers.					
Absolute number (=100%)	973	233	335	-18	0.7
attainments in education:					
in secondary education	22.4	18.0	24.8	-33	0.5
at university	34.8	30.0	34.6	-25	0.6
realising a desired occupation:					
occupation of own choice	23.1	19.7	23.9	-27	0.6
socially or morally good	6.5	8.2	5.7	0	1
scientific work	5.4	6.9	4.2	7	1.1
materially profitable	0	0	0	0 0	
a distinguished position:					
to be creative	6.6	10.7	5.7	14	1.3
to become famous	3.7	6.0	2.4	14 8	
to be wealthy	.3	0	.6	0 2	
attainments on behalf of others:					
devote oneself to others	4.5	6.9	5.1	-3	0.9
be a good Pole	2.3	2.1	1.8	5 6	
to serve humanity	1.7	1.3	1.5	3 5	
attainments in personal life:					
to be loved	2.7	4.7	.9	11 3	
a happy family	1.2	.4	.9	1 3	
personal happiness	.4	0	.3	0 1	
fascinating, active life	.7	0	.9	0 3	
other notions	3.9	5.2	2.4	12 8	
Farmers.					
Absolute number (=100%)	361	54	151	-47	0.4
attainments in education:					
in secondary education	26.9	25.9	30.5	-53	0.3
at university	30.5	29.6	29.8	-48	0.4
realising a desired occupation:					
occupation of own choice	26.6	35.2	24.5	-32	0.5
socially or morally good	7.5	7.4	7.3	4 11	
scientific work	3.0	1.9	5.3	1 8	
materially profitable	0	0	0	0 0	
a distinguished position:					
to be creative	3.9	1.9	6.0	1 9	
to become famous	3.9	9.3	2.6	5 4	
to be wealthy	.8	1.9	.7	1 1	
attainments on behalf of others:					
devote oneself to others	3.6	3.7	4.6	2 7	
be a good Pole	2.2	1.9	2.0	1 3	
to serve humanity	.8	0	0	0 0	
attainments in personal life:					
to be loved	1.4	1.9	.7	1 1	
a happy family	.6	1.9	0	1 0	
personal happiness	.8	0	1.3	0 2	
fascinating, active life	1.7	0	1.3	0 2	
other notions	3.0	3.7	3.3	2 5	

Table I-in.

Scores on the index for the pupil's interests and success at the finals.

A. TOTAL

Score:	Expected frequency distribu- tion	Finalists: total	Finalists:		SR	SQ
			high scorers	low scorers		
Absolute number (=100%)		4995	1666	1260	14	1.3
3 (favourable)	7.8	10.1	9.6	10.4	9	1.2
4	10.5	10.1	10.3	9.5	16	1.4
5	23.0	24.3	24.2	25.6	10	1.2
6	20.9	16.8	17.7	15.8	18	1.4
7	18.7	19.7	19.4	18.2	16	1.4
8	11.6	8.8	8.8	8.5	15	1.3
9	5.3	7.2	7.8	7.5	15	1.3
10	1.8	2.4	1.8	3.6	-21	0.7
11	0.3	.6	.3	.9	5	10
12 (unfavourable)	0.0	.0	.0	.0		
missing cases		785	206	125		

Table I-in.

Scores on the index for the pupil's interests and success at the finals.

B. PLACE OF RESIDENCE

Score:	Finalists: total	high scorers	low scorers	SR	SQ
Capital of a province.					
Absolute number (=100%)	1628	840	269	51	3.1
3 (favourable)		7.0	10.4	33	2
4		8.6	10.4	42	2.5
5		25.1	28.1	45	2.7
6		16.1	15.2	52	3.2
7		22.2	17.3	59	3.8
8		8.9	6.5	61	4.1
9		9.6	7.4	59	3.9
10		2.6	3.5	18	8
11		.0	1.3	0	3
12 (unfavourable)		.0	.0		
missing cases		151	38		
 Other town.					
Absolute number (=100%)	1688	504	437	7	1.2
3 (favourable)		13.2	11.4	16	1.4
4		12.1	8.4	27	1.7
5		24.0	25.3	6	1.1
6		16.2	15.9	9	1.2
7		17.2	16.2	12	1.3
8		7.9	9.6	-1	1
9		7.2	7.6	6	1.1
10		1.3	4.8	6	19
11		.9	.8	4	3
12 (unfavourable)		.0	.0		
missing cases		34	42		

Table I-in.

Scores on the index for the pupil's interests and success at the finals.

B. PLACE OF RESIDENCE

Score:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Village.					
Absolute number (=100%)	1344	320	554	-27	0.6
3 (favourable)		10.0	9.6	-24	0.6
4		11.0	10.0	-21	0.6
5		22.4	24.8	-31	0.5
6		23.7	15.9	-7	0.9
7		16.4	20.2	-36	0.5
8		10.4	8.4	-16	0.7
9		4.7	7.5	-46	0.4
10		1.0	2.8	3 14	
11		.3	.8	1 4	
12 (unfavourable)		.0	.0		
missing cases		21	45		

Table 1-st.

Scores on the index for the conditions for study at home and success at the finals.

A. TOTAL

Score:	Expected frequency distribu- tion	Finalists: total	high scorers	low scorers	SR	SQ
Absolute number (=100%)	4995	1666	1260	14	1.3	
4 (favourable)	0.7	2.8	4.1	1.9	47	2.8
5	3.7	8.1	11.7	6.2	42	2.4
6	7.5	11.0	14.7	7.6	42	2.5
7	8.7	7.9	10.7	5.1	45	2.7
8	8.7	6.7	9.0	4.8	41	2.4
9	9.9	8.2	9.2	6.9	26	1.7
10	11.1	9.2	8.3	9.6	5	1.1
11	11.3	8.2	8.2	8.3	12	1.3
12	11.3	6.6	5.6	8.0	-5	0.9
13	9.8	5.8	3.6	7.1	-21	0.7
14	7.3	5.8	4.1	6.3	-8	0.8
15	4.7	5.0	3.3	6.4	-21	0.7
16	2.7	4.7	2.7	6.4	-30	0.5
17	1.5	3.9	2.1	5.7	-35	0.5
18	0.7	2.4	1.4	3.9	-36	0.5
19	0.3	1.7	0.6	2.7	-55	0.3
20	0.1	1.2	0.3	2.0	6 23	
21	0	0.4	0.1	0.9	2 10	
22	0	0.1	0.1	0.1	1 1	
23	0	0.0	0	0.2	0 2	
24 (unfavourable)	0	0	0	0		
number of missing cases		683	170	93		

Table 1-st.

Scores on the index for the conditions for study at home and success at the finals.

B. PLACE OF RESIDENCE

Score:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	1628	840	269	51	3.1
4 (favourable)		6.6	5.6	55	3.4
5		18.8	16.5	54	3.3
6		20.3	13.7	62	4.3
7		11.8	7.2	65	4.7
8		9.4	5.2	68	5.2
9		7.9	8.4	46	2.7
10		6.5	10.0	31	1.9
11		7.2	6.0	55	3.5
12		2.6	8.8	-7	0.9
13		3.0	6.0	19	1.5
14		1.9	4.0	14 10	
15		1.7	3.6	12 9	
16		0.8	2.0	6 5	
17		0.6	1.6	4 4	
18		0.4	0	3 0	
19		0.1	0.8	1 2	
20		0.1	0.4	1 1	
21		0.1	0	1 0	
22		0	0	0 0	
23		0	0	0 0	
24 (unfavourable)		0	0		
number of missing cases		117	20		

Table I-st.

Scores on the index for the conditions for study at home and success at the finals.

B. PLACE OF RESIDENCE

Score:	Finalists:			SR	SQ
	total	high	low		
		scorers	scorers		

Other town.					
Absolute number (=100%)	1688	504	437	7	1.2
4 (favourable)		1.9	1.5	9 6	
5		6.9	5.0	23	1.6
6		10.7	9.2	15	1.4
7		11.8	6.7	34	2
8		8.4	5.9	24	1.6
9		13.3	10.1	20	1.5
10		11.1	12.1	3	1.1
11		11.1	13.1	-1	1
12		8.8	7.2	17	1.4
13		3.2	7.9	-36	0.5
14		4.3	6.9	-17	0.7
15		3.6	3.2	13	1.3
16		2.4	4.0	11 16	
17		1.7	3.2	8 13	
18		0.2	2.0	1 8	
19		0.4	1.0	2 4	
20		0.2	0.7	1 3	
21		0	0.2	0 1	
22		0	0	0 0	
23		0	0	0 0	
24 (unfavourable)		0	0		
number of missing cases		37	33		

Table I-st.

Scores on the index for the conditions for study at home and success at the finals.

B. PLACE OF RESIDENCE

Score:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Village.					
Absolute number (=100%)	1344	320	554	-27	0.6
4 (favourable)		1.3	0.4	4 2	
5		2.3	2.1	7 11	
6		7.6	3.5	12	1.3
7		6.3	2.9	12	1.3
8		9.2	3.7	19	1.5
9		5.9	3.7	-3	0.9
10		8.2	7.4	-21	0.7
11		6.3	5.6	-21	0.7
12		7.9	8.2	-27	0.6
13		5.6	7.0	-36	0.5
14		9.2	6.8	-11	0.8
15		6.6	10.3	-45	0.4
16		7.6	10.5	-40	0.4
17		6.6	9.7	-43	0.4
18		5.6	7.2	-37	0.5
19		2.0	4.9	-61	0.2
20		1.3	3.7	4 19	
21		0.3	1.8	1 9	
22		0.3	0.2	1 1	
23		0	0.4	0 2	
24 (unfavourable)		0	0		
number of missing cases		16	40		

Table II-1

Characteristics of the sample of pupils included in the multivariate analysis of determinants of the chance for high marks in the first grade of secondary education (compared to the pupils who completed primary education in 1976/77 and to the total of finalists).

Variable and code in the analysis:	Distribution among the:				
	pupils in secondary education: total	of whom: class mates	final- ists	pupils who completed primary school in 1976/77	finalists (adjusted for missing cases)
Total (100%)	9,454	9,100	354	532,989	4,995
Variable 1					
School marks:					
1 mainly very good, none less than good	11	10	48	.	.
2 less than half very good and/or one or more less than good	89	90	52	.	.
Variable 2					
Reached the finals:					
1 yes	4	0	100	1	100
2 no	96	100	0	99	0
Variable 3					
Place of residence:					
1 town	67	67	68	54	69
2 village	32	32	32	46	31
Variable 4					
Socio-occupational category of the parents:					
1 employees	57	57	68	17	69
2 manual workers	28	29	19	50	20
2 farmers	12	12	12	26	7
2 others	2	2	2	6	4
Variable 5					
Gender:					
1 girl	60	59	55	50	61
2 boy	40	41	45	50	39
Variable 6					
Field of study:					
1 linguistics and humanities	(100)	(100)	(100)	.	44
2 mathematics and science	(100)	(100)	(100)	.	56

Table II-2

Proportions of pupils who obtained high marks in the first grade of secondary education.

Category of pupils:	Proportion with high marks (percent)	
All pupils in the analysis (N = 9,454)	11.4	
FINALISTS	48.0	
of whom living in a:		
town	51	
children of:		
employees	52	
girls	53	
linguistics and humanities		56
mathematics and science		51
boys	49	
linguistics and humanities		38
mathematics and science		61
manual workers, farmers etc.	51	
girls	48	
linguistics and humanities		48
mathematics and science		48
boys	53	
linguistics and humanities		50
mathematics and science		57
village	36	
children of:		
employees	47	
girls	42	
linguistics and humanities		52
mathematics and science		32
boys	55	
linguistics and humanities		40
mathematics and science		70
manual workers, farmers etc.	25	
girls	26	
linguistics and humanities		28
mathematics and science		24
boys	24	
linguistics and humanities		32
mathematics and science		17
children of employees (all finalists)	51	
children of manual workers, farmers etc.	38	
girls		49
boys		48

Table II-2

Proportions of pupils who obtained high marks in the first grade of secondary education.

Category of pupils:	Proportion with high marks (percent)	
All pupils in the analysis (N = 9,454)	11.4	
CLASS-MATES	9.9	
of whom living in a:		
town	12	
children of:		
employees	14	
girls	15	
linguistics and humanities	19	
mathematics and science	12	
boys	12	
linguistics and humanities	9	
mathematics and science	14	
manual workers, farmers etc.	7	
girls	8	
linguistics and humanities	9	
mathematics and science	7	
boys	6	
linguistics and humanities	6	
mathematics and science	7	
village	6	
children of:		
employees	9	
girls	7	
linguistics and humanities	9	
mathematics and science	5	
boys	12	
linguistics and humanities	10	
mathematics and science	14	
manual workers, farmers etc.	5	
girls	4	
linguistics and humanities	4	
mathematics and science	4	
boys	5	
linguistics and humanities	5	
mathematics and science	6	
children of employees (all class-mates)	13	
children of manual workers, farmers etc.	6	
girls	10	
boys	10	

Table III-1

Traits of the finalists in which they distinguished themselves from their class-mates in the opinion of their teacher.

A. TOTAL

Distinctive traits:	Finalists:			SR	SQ
	total	high scorers	low scorers		
In the opinion of the teacher in primary school:					
Absolute number (=100%)	1450	441	344	12	1.4
diligence and perseverance	34.5	35.2	35.3	12	1.3
correctness and originality in oral statements	29.7	35.1	25.3	28	1.8
aptitude at written formulation	29.2	34.7	25.9	26	1.7
competence in problem-solving	27.0	32.0	21.8	31	1.9
reliable and logical memory	25.8	28.6	21.2	27	1.7
knowledge of the subject of the competition	23.3	29.5	16.1	41	2.4
comradeship and helpfulness	20.1	21.8	22.6	10	1.2
capacities of leadership	20.1	19.7	22.9	5	1.1
sense of humour	16.9	14.7	17.8	3	1.1
ability to submit to others	14.7	14.5	18.5	0	1
In the opinion of the teacher in secondary school:					
Absolute number (=100%)	759	212	126	25	1.7
diligence and perseverance	12.4	18.0	5.4	69	5.4
correctness and originality in oral statements	11.1	17.9	4.1	77	7.6
aptitude at written formulation	10.2	12.2	8.4	41	2.4
competence in problem-solving	8.3	10.7	3.2	23 4	
reliable and logical memory	9.8	10.4	5.5	22 7	
knowledge of the subject of the competition	8.9	13.7	3.0	76	7.3
comradeship and helpfulness	9.7	9.7	8.5	31	1.9
capacities of leadership	7.7	12.7	4.1	69	5.4
sense of humour	7.4	12.3	3.3	73	6.5
ability to submit to others	11.3	16.5	15.5	27	1.8

Table III-1

Traits of the finalists in which they distinguished themselves from their class-mates in the opinion of their teacher in primary school.

B. SOCIO-OCCUPATIONAL BACKGROUND

Distinctive traits:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	369	153	83	30	1.8
diligence and perseverance	32.0	34.3	24.4	44	2.6
correctness and originality in oral statements	34.9	42.1	27.2	47	2.8
aptitude at written formulation	30.3	36.0	22.2	51	3.1
competence in problem-solving	30.2	37.0	22.8	50	3
reliable and logical memory	28.4	33.4	18.0	55	3.4
knowledge of the subject of the competition	25.5	33.5	14.5	62	4.3
comradeship and helpfulness	21.1	20.7	21.3	28	1.8
capacities of leadership	22.1	23.6	22.9	31	1.9
sense of humour	19.8	21.6	19.5	35	2.1
ability to submit to others	13.8	17.2	15.5	33	2
Other employees.					
Absolute number (=100%)	565	209	118	28	1.8
diligence and perseverance	35.3	35.5	33.7	30	1.9
correctness and originality in oral statements	27.0	31.1	21.0	44	2.6
aptitude at written formulation	27.7	34.1	25.9	39	2.3
competence in problem-solving	23.1	27.9	18.0	47	2.8
reliable and logical memory	22.5	24.6	22.3	32	2
knowledge of the subject of the competition	22.6	24.7	18.6	41	2.4
comradeship and helpfulness	21.2	20.1	27.7	12	1.3
capacities of leadership	20.3	18.0	23.5	15	1.4
sense of humour	17.5	12.2	18.1	9	1.2
ability to submit to others	15.2	11.5	22.1	-4	0.9

Table III-1

Traits of the finalists in which they distinguished themselves from their class-mates in the opinion of their teacher in primary school.

B. SOCIO-OCCUPATIONAL BACKGROUND

Distinctive traits:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Manual workers.					
Absolute number (=100%)	272	62	89	-18	0.7
diligence and perseverance	35.0	33.9	37.5	-22	0.6
correctness and originality in oral statements	25.8	31.0	17.5	9	1.2
aptitude at written formulation	26.9	35.5	23.7	2	1
competence in problem-solving	27.1	33.4	20.0	8	1.2
reliable and logical memory	24.4	22.9	20.5	-12	0.8
knowledge of the subject of the competition	19.7	33.9	9.3	21 8	
comradeship and helpfulness	21.4	32.1	16.7	14	1.3
capacities of leadership	18.0	15.4	20.8	10 19	
sense of humour	12.9	8.6	9.8	5 9	
ability to submit to others	14.7	12.6	14.3	8 13	
Farmers.					
Absolute number (=100%)	123	17	50	-49	0.3
diligence and perseverance	38.5	46.7	53.2	-54	0.3
correctness and originality in oral statements	35.4	35.7	46.7	6 23	
aptitude at written formulation	36.5	29.4	36.2	5 18	
competence in problem-solving	29.5	33.3	27.7	6 14	
reliable and logical memory	29.0	57.2	24.0	10 12	
knowledge of the subject of the competition	21.3	37.5	20.0	6 10	
comradeship and helpfulness	14.0	14.3	22.7	2 11	
capacities of leadership	17.8	21.4	23.8	4 12	
sense of humour	16.9	8.4	23.7	1 12	
ability to submit to others	16.1	33.3	20.1	6 10	

Table III-1

Traits of the finalists in which they distinguished themselves from their class-mates in the opinion of their teacher in primary school.

C. GENDER

Distinctive traits:	GIRLS:		BOYS:	
	%	SR	%	SR
Absolute number (=100%)	825	8	506	19
diligence and perseverance	39.1	5	27.2	32
correctness and originality in oral statements	29.4	32	29.8	21
aptitude at written formulation	30.7	24	26.3	33
competence in problem-solving	21.5	28	34.5	33
reliable and logical memory	24.1	24	27.1	31
knowledge of the subject of the competition	19.3	35	28.6	47
comradeship and helpfulness	25.5	5	12.9	27
capacities of leadership	23.8	-4	13.8	20 9
sense of humour	15.6	4	19.8	-3
ability to submit to others	17.7	-14	10.7	13 7

Table III-12

Ability and success at the finals.

A. TOTAL

The finalist's ability in comparison to that of other pupils the teacher knew.	Finalists:			SR	SQ
	total	high scorers	low scorers		
The teacher in primary school knew:					
Absolute number (=100%)	1450	441	344	12	1.4
- no equally able pupils	4.5	7.3	2.3	60	4
- a few more able pupils	41.7	48.5	35.5	27	1.8
- many more able pupils	50.0	40.4	58.1	-6	0.9
other answers	2.0	2.9	1.8	13	6
missing cases	1.9	.9	2.3		
The teacher in secondary school knew:					
Absolute number (=100%)	759	212	126	25	1.7
- no equally able pupils	.9	0	1.6	0	2
- a few more able pupils	14.2	21.7	5.6	74	6.6
- many more able pupils	51.5	48.6	74.6	5	1.1
other answers	1.9	4.2	.8	9	1
missing cases	31.5	25.5	17.5		

Table III-12

Ability and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

The finalist's ability in comparison to that of other pupils the teacher knew.	Finalists: total	high scorers	low scorers	SR	SQ
The teacher in primary school knew:					
Teachers.					
Absolute number (=100%)	369	153	83	30	1.8
- no equally able pupils	5.7	9.8	2.4	15 2	
- a few more able pupils	45.0	49.7	39.8	39	2.3
- many more able pupils	44.4	35.3	53.0	10	1.2
other answers	3.0	4.6	1.2	7 1	
missing cases	1.9	.7	3.6		
Other employees.					
Absolute number (=100%)	565	209	118	28	1.8
- no equally able pupils	4.4	5.3	2.5	11 3	
- a few more able pupils	43.2	50.7	39.0	39	2.3
- many more able pupils	48.3	41.1	53.4	15	1.4
other answers	2.0	1.4	3.3	3 4	
missing cases	2.1	1.4	1.7		
Manual workers.					
Absolute number (=100%)	272	62	89	-18	0.7
- no equally able pupils	2.6	4.8	0	3 0	
- a few more able pupils	35.7	41.9	27.0	4	1.1
- many more able pupils	58.1	48.4	69.7	-35	0.5
other answers	1.9	4.8	1.1	3 1	
missing cases	1.8	0	2.2		
Farmers.					
Absolute number (=100%)	123	17	50	-49	0.3
- no equally able pupils	4.5	17.6	4.0	3 2	
- a few more able pupils	41.7	35.3	36.0	6 18	
- many more able pupils	50.0	47.1	58.0	-57	0.3
other answers	2.0	0	0	0 0	
missing cases	1.9	0	2.0		

Table III-13

Creative ability and success at the finals.

A. TOTAL

Kind of creative ability the finalist showed:	Finalists:			SR	SQ
	total	high scorers	low scorers		
In the opinion of the teacher in primary school.					
Absolute number (=100%)	1450	441	344	12	1.4
abilities in the field of:					
- humanities and social activity	35.7	44.7	34.6	25	1.7
- science and technology	41.4	47.4	33.1	29	1.8
- art and sport	44.8	48.1	48.5	12	1.3
the finalist did not show creative ability	21.1	16.3	22.1	-3	0.9
missing cases	2.7	.9	3.5		
In the opinion of the teacher in secondary school.					
Absolute number (=100%)	759	212	126	25	1.7
abilities in the field of:					
- humanities and social activity	11.2	14.2	10.3	40	2.3
- science and technology	20.2	22.2	16.7	38	2.2
- art and sport	16.2	20.8	19.8	28	1.8
the finalist did not show creative ability	30.7	31.1	43.7	9	1.2
missing cases	32.3	24.5	19.0		

Table III-13
Creative ability and success at the finals.

B. SUBJECT OF THE COMPETITION

Kind of creative ability the finalist showed in the teacher-promotor's opinion:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Polish language. Absolute number (=100%)	641	226	179	12	1.3
abilities in the field of:					
- humanities and social activity	56.2	65.9	50.8	24	1.6
- science and technology	20.9	30.1	12.3	51	3.1
- art and sport	58.7	60.2	61.5	11	1.2
the finalist did not show creative ability	17.3	14.6	15.1	10	1.2
missing cases	2.0	.4	4.5		
Mathematics. Absolute number (=100%)	715	220	168	13	1.3
abilities in the field of:					
- humanities and social activity	17.8	24.5	16.7	32	1.9
- science and technology	59.4	67.7	54.8	24	1.6
- art and sport	33.6	36.8	34.5	17	1.4
the finalist did not show creative ability	24.5	16.8	29.8	-15	0.7
missing cases	3.2	5.5	5.5		

Table III-13
Creative ability and success at the finals.

C. SOCIO-OCCUPATIONAL BACKGROUND

Kind of creative ability the finalist showed in the teacher-promotor's opinion:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	369	153	83	30	1.8
abilities in the field of:					
- humanities and social activity	39.8	50.3	41.0	39	2.3
- science and technology	42.0	51.0	33.7	47	2.8
- art and sport	49.6	51.0	50.6	30	1.9
the finalist did not show creative ability	19.5	12.4	18.1	12	1.3
missing cases	3.0	.7	4.8		
Other employees.					
Absolute number (=100%)	565	209	118	28	1.8
abilities in the field of:					
- humanities and social activity	36.3	42.6	36.4	35	2.1
- science and technology	42.8	45.9	31.4	44	2.6
- art and sport	45.0	47.4	54.2	21	1.5
the finalist did not show creative ability	19.8	18.2	21.2	21	1.5
missing cases	2.1	1.0	1.7		
Manual workers.					
Absolute number (=100%)	272	62	89	-18	0.7
abilities in the field of:					
- humanities and social activity	26.8	33.9	25.8	-5	0.9
- science and technology	42.3	50.0	40.4	-7	0.9
- art and sport	40.8	41.9	39.3	-15	0.7
the finalist did not show creative ability	23.2	17.7	24.7	-33	0.5
missing cases	3.7	1.6	4.5		
Farmers.					
Absolute number (=100%)	123	17	50	-49	0.3
abilities in the field of:					
- humanities and social activity	39.8	58.8	34.0	10 17	
- science and technology	25.2	23.5	24.0	4 12	
- art and sport	43.1	52.9	46.0	-44	0.4
the finalist did not show creative ability	28.5	23.5	26.0	4 13	
missing cases	1.6	0	4.0		

Table III-15

Temperament and success at the finals.

TOTAL

The finalist's temperament:	Finalists:			SR	SQ
	total	high scorers	low scorers		
In the opinion of the teacher in primary school.					
Absolute number (=100%)	1450	441	344	12	1.4
level-headed	65.2	63.5	65.7	11	1.2
self-possessed (calm)	37.8	38.8	41.9	9	1.2
phlegmatic	5.9	5.0	5.8	5	1.1
unbalanced	5.2	7.7	3.5	48	2.8
impetuous	4.4	5.0	2.9	38	2.2
aggressive	1.0	1.4	.9	6 3	
missing cases	1.4	.5	1.7		
In the opinion of the teacher in secondary school.					
Absolute number (=100%)	759	212	126	25	1.7
level-headed	41.9	47.6	52.4	21	1.5
self-possessed (calm)	25.0	27.8	31.0	20	1.5
phlegmatic	5.1	5.2	3.2	11 4	
unbalanced	4.0	3.8	4.8	8 6	
impetuous	1.3	1.4	1.6	3 2	
aggressive	.7	.5	0	1 0	
missing cases	30.7	24.1	17.5		

Table III-15
Temperament and success at the finals.

SOCIO-OCCUPATIONAL BACKGROUND

The finalist's temperament in the opinion of the teacher-promotor:	Finalists: total	high scorers	low scorers	SR	SQ
Teachers.					
Absolute number (=100%)	369	153	83	30	1.8
level-headed	62.6	59.5	65.1	26	1.7
self-possessed (calm)	36.9	38.6	38.6	30	1.8
phlegmatic	5.1	3.9	6.0	6 5	
unbalanced	7.9	9.8	7.2	15 6	
impetuous	6.5	8.5	6.0	13 5	
aggressive	1.4	2.6	0	4 0	
missing cases	1.4	.7	1.2		
Other employees.					
Absolute number (=100%)	565	209	118	28	1.8
level-headed	64.6	63.6	66.1	26	1.7
self-possessed (calm)	37.7	39.7	42.4	25	1.7
phlegmatic	7.3	5.3	9.3	11 11	
unbalanced	5.1	7.7	.8	16 1	
impetuous	3.7	3.3	1.7	7 2	
aggressive	.5	.5	.8	1 1	
missing cases	1.4	0	1.7		
Manual workers.					
Absolute number (=100%)	272	62	89	-18	0.7
level-headed	66.5	67.7	66.3	-17	0.7
self-possessed (calm)	41.2	38.7	44.9	-25	0.6
phlegmatic	4.8	6.5	3.4	4 3	
unbalanced	3.3	4.8	2.2	3 2	
impetuous	3.7	0	1.1	0 1	
aggressive	1.8	1.6	1.1	1 1	
missing cases	1.8	1.6	2.2		
Farmers.					
Absolute number (=100%)	123	17	50	-49	0.3
level-headed	71.5	82.4	64.0	-39	0.4
self-possessed (calm)	34.1	29.4	40.0	5 20	
phlegmatic	4.9	5.9	2.0	1 1	
unbalanced	3.3	0	6.0	0 3	
impetuous	3.3	11.8	4.0	2 2	
aggressive	.8	0	2.0	0 1	
missing cases	.8	0	2.0		

Table III-17

Defects of character and success at the finals.

TOTAL

Defects of character of the finalist:	Finalists:			SR	SQ
	total	high scorers	low scorers		
In the opinion of the teacher in primary school.					
Absolute number (=100%)	1450	441	344	12	1.4
egoism	2.2	2.5	2.3	11 8	
lack of conscientiousness	1.6	1.1	2.6	5 9	
resourcelessness, shyness	1.2	1.1	2.0	5 7	
low standard of culture	1.0	1.6	.9	7 3	
lack of critical judgment	.3	.5	.6	2 2	
lack of ambition	.2	0	.3	0 1	
other defects	4.2	4.5	4.7	11	1.3
the finalist does not show					
defects of character	87.5	88.6	84.0	15	1.4
missing cases	2.3	1.1	3.2		
In the opinion of the teacher in secondary school.					
Absolute number (=100%)	759	212	126	25	1.7
egoism	1.7	2.4	.8	5 1	
lack of conscientiousness	2.4	4.7	.8	10 1	
resourcelessness, shyness	2.9	4.7	2.4	10 3	
low standard of culture	1.8	2.8	.8	6 1	
lack of critical judgment	1.1	1.4	0	3 0	
lack of ambition	.7	.5	1.6	1 2	
other defects	.4	.5	0	1 0	
the finalist does not show					
defects of character	59.4	62.3	75.4	16	1.4
missing cases	31.2	23.6	18.3		

Table III-17

Defects of character and success at the finals.

SOCIO-OCCUPATIONAL BACKGROUND

Opinion of the teacher promotor:	Finalists: total	high scorers	low scorers	SR	SQ
Teachers.					
Absolute number (=100%)	369	153	83	30	1.8
the finalist does not show defects of character	87.6	91.5	81.9	35	2.1
the finalist has some defect of character	10.2	7.8	16.9	12 14	
missing cases	2.2	.7	1.2		
Other employees.					
Absolute number (=100%)	565	209	118	28	1.8
the finalist does not show defects of character	88.0	88.5	85.5	29	1.8
the finalist has some defect of character	9.9	11.0	12.0	24	1.6
missing cases	2.1	.5	2.5		
Manual workers.					
Absolute number (=100%)	272	62	89	-18	0.7
the finalist does not show defects of character	82.7	80.6	82.0	-19	0.7
the finalist has some defect of character	14.4	16.2	13.5	10 12	
missing cases	2.9	3.2	4.5		
Farmers.					
Absolute number (=100%)	123	17	50	-49	0.3
the finalist does not show defects of character	91.1	94.1	86.0	-46	0.4
the finalist has some defect of character	5.6	0	8.0	0 4	
missing cases	3.3	5.9	6.0		

Table III-18

Physical defects and success at the finals.

TOTAL

Physical defects of the finalist:	Finalists:			SR	SQ
	total	high scorers	low scorers		
In the opinion of the teacher in primary school.					
Absolute number (=100%)	1450	441	344	12	1.4
very short stature	1.9	2.5	1.5	11 5	
corpulence	1.3	1.6	1.7	7 6	
cripplehood	1.0	1.4	1.2	6 4	
sickliness	1.6	2.0	1.5	9 5	
defects of:					
- speech	1.0	1.8	1.2	8 4	
- eyesight	1.2	1.1	1.2	5 4	
- hearing	.1	.2	0	1 0	
other defects	1.6	2.3	1.2	10 4	
the finalist does not show					
physical defects	89.9	88.2	89.0	12	1.3
missing cases	1.4	.5	2.3		
In the opinion of the teacher in secondary school.					
Absolute number (=100%)	759	212	126	25	1.7
very short stature	.7	.9	.8	2 1	
corpulence	.7	.5	.8	1 1	
cripplehood	.1	0	0	0 0	
sickliness	.7	1.4	0	3 0	
defects of:					
- speech	.9	.9	.8	2 1	
- eyesight	.4	0	.8	0 1	
- hearing	.1	0	0	0 0	
other defects	.3	.5	.8	1 1	
no physical defects	65.3	72.2	79.4	21	1.5
missing cases	31.1	23.6	17.5		

Table III-18
Physical defects and success at the finals.

SOCIO-OCCUPATIONAL BACKGROUND

Opinion of the teacher promotor:	Finalists:			SR	SQ
	total	high scorers	low scorers		
Teachers.					
Absolute number (=100%)	369	153	83	30	1.8
the finalist does not show physical defects	90.8	89.5	92.8	28	1.8
the finalist has some physical defect	7.8	9.8	6.0	15 5	
missing cases	1.4	.7	1.2		
Other employees.					
Absolute number (=100%)	565	209	118	28	1.8
the finalist does not show physical defects	89.2	87.6	88.1	28	1.8
the finalist has some physical defect	9.2	11.9	10.2	35	2.1
missing cases	1.6	.5	1.7		
Manual workers.					
Absolute number (=100%)	272	62	89	-18	0.7
the finalist does not show physical defects	89.3	88.7	87.6	-17	0.7
the finalist has some physical defect	8.9	11.3	7.9	7 7	
missing cases	1.8	0	4.5		
Farmers.					
Absolute number (=100%)	123	17	50	-49	0.3
the finalist does not show physical defects	89.4	82.4	86.0	-51	0.3
the finalist has some physical defect	9.8	17.6	12.0	3 6	
missing cases	.8	0	2.0		

Table IV-12

Resource rooms in the finalists' primary school, and success at the finals.

A. TOTAL

	Total	Schools of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1165	510	287	28	1.8
The school has a resource room for:					
the subject of the contest and eventually other subjects as well	75	75	72	31	1.9
only other subject(s)	16	16	19	20	1.5
none	8	6	7	20	1.5
missing cases	1	1	2		

The best equipped resource room in the school is for:

the subject of the contest	24	25	20	39	2.3
another subject	76	75	80	26	1.7

Table IV-12

Resource rooms in the finalists' primary school, and success at the finals.

B. THE SCHOOL'S LOCALITY

	Total	Schools of:		SR	SQ
		high scorers	low scorers		
Urban schools.					
Absolute number (=100%)	718	374	134	47	2.8
The school has a resource room for:					
the subject of the contest and eventually other subjects as well	81	80	82	45	2.7
only other subject(s)	13	15	12	54	3.4
none	5	4	5	15 6	
missing cases	1	1	2		
The best equipped resource room in the school is for:					
the subject of the contest	27	26	23	53	3.2
another subject	73	74	77	45	2.6
Rural schools.					
Absolute number (=100%)	447	136	153	-6	0.9
The school has a resource room for:					
the subject of the contest and eventually other subjects as well	65	71	64	-1	1
only other subject(s)	21	18	24	-21	0.6
none	13	12	10	3	1.1
missing cases	1	0	2		
The best equipped resource room in the school is for:					
the subject of the contest	18	21	16	5	1.1
another subject	82	79	84	-9	0.8

Table IV-15

Library facilities in the finalists' primary schools, and
success at the finals.

TOTAL

	Total	Schools of:		SR	SQ
		high	low		
		scorers	scorers		
Absolute number (=100%)	1165	510	287	28	1.8
Number of volumes to one pupil in the school library:					
up to 10	14	13	14	24	1.6
11 - 20	55	59	46	39	2.3
21 - 30	17	17	24	12	1.3
more than 30	5	4	5	22	1.6
missing cases	9	7	11		
Availability of titles needed for effective preparation for the competition:					
all necessary titles are available	52	55	56	27	1.7
there is a lack of:					
fundamental literature	7	6	8	17	1.4
supplementary titles	9	8	8	28	1.8
the latest literature	7	7	5	46	2.7
miscellaneous titles	21	21	19	33	2
missing cases	4	2	4		

Table IV-15

Library facilities in the finalists' primary schools, and success at the finals.

B. THE SCHOOL'S LOCALITY

	Total	Schools of:		SR	SQ
		high scorers	low scorers		
Urban schools.					
Absolute number (=100%)	718	374	134	47	2.8
Number of volumes to one pupil in the school library:					
up to 10	17	14	18	38	2.2
11 - 20	57	60	51	53	3.3
21 - 30	12	14	13	52	3.2
more than 30	3	3	3	12 4	
missing cases	10	8	15		
Availability of titles needed for effective preparation for the competition:					
all necessary titles are available	60	59	68	41	2.4
there is a lack of:					
fundamental literature	5	5	6	20 8	
supplementary titles	6	6	4	23 6	
the latest literature	7	7	4	65	4.7
miscellaneous titles	18	20	12	64	4.6
missing cases	4	2	5		
Rural schools.					
Absolute number (=100%)	447	136	153	-6	0.9
Number of volumes to one pupil in the school library:					
up to 10	10	9	10	12 16	
11 - 20	52	56	41	9	1.2
21 - 30	25	25	34	-21	0.7
more than 30	6	7	7	10 10	
missing cases	7	3	8		
Availability of titles needed for effective preparation for the competition:					
all necessary titles are available	40	43	46	-9	0.8
there is a lack of:					
fundamental literature	9	8	9	11 14	
supplementary titles	14	15	12	5	1.1
the latest literature	7	7	5	10 8	
miscellaneous titles	27	25	25	-6	0.9
missing cases	3	2	3		

Table IV-17

Material equipment of the finalists' primary schools, and success at the finals.

A. TOTAL

The school is equipped with:	Total	Schools of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1165	510	287	28	1.8
a reading room:					
no	70	67	75	23	1.6
yes	30	33	25	39	2.3
a club room:					
no	26	21	32	8	1.2
yes	74	79	68	35	2.1
of which:					
- sufficiently large	42	43	35	43	2.5
- with full-time staff	70	74	67	39	2.3
a gymnasium:					
no	28	25	31	17	1.4
yes	72	75	69	32	1.9
of which a large one	58	60	53	38	2.2
a canteen:					
no	27	23	32	13	1.3
yes	73	77	68	35	2.1
in which are available:					
- all meals	37	41	34	43	2.5
- only warm meals	53	51	55	32	1.9
- only cold meals	9	7	11	14	1.3
central heating	77	82	71	35	2.1
good sanitary facilities	73	76	67	34	2.0

Table IV-17

Material equipment of the finalists' primary schools, and success at the finals.

B. THE SCHOOL'S LOCALITY

The school is equipped with:	Total	Schools of:		SR	SQ
		high scorers	low scorers		
Urban schools.					
Absolute number (=100%)	718	374	134	47	2.8
a reading room:					
no	59	59	62	46	2.7
yes	41	41	38	50	3.0
a club room:					
no	11	15	5	80	9.0
yes	89	85	95	43	2.5
of which:					
- sufficiently large	43	46	35	53	3.3
- with full-time staff	80	80	85	40	2.4
a gymnasium:					
no	17	18	17	49	2.9
yes	83	82	83	47	2.8
of which a large one	65	63	65	45	2.7
a canteen:					
no	13	15	8	62	4.3
yes	87	85	92	46	2.7
in which are available:					
- all meals	42	44	40	49	2.9
- only warm meals	54	52	57	42	2.4
- only cold meals	5	5	3	14	4
central heating	90	89	89	47	2.8
good sanitary facilities	84	84	84	47	2.8

Table IV-17

Material equipment of the finalists' primary schools, and success at the finals.

B. THE SCHOOL'S LOCALITY

The school is equipped with:	Total	Schools of:		SR	SQ
		high scorers	low scorers		
Rural schools.					
Absolute number (=100%)	447	136	153	-6	0.9
a reading room:					
no	88	89	85	-4	0.9
yes	12	11	15	-19	0.7
a club room:					
no	49	38	55	-23	0.6
yes	51	62	45	10	1.2
of which:					
- sufficiently large	38	33	35	8	1.2
- with full-time staff	41	51	35	28	1.8
a gymnasium:					
no	45	44	44	-6	0.9
yes	55	56	56	-6	0.9
of which a large one	42	49	36	9	1.2
a canteen:					
no	50	44	52	-12	0.8
yes	50	56	48	3	1.1
in which are available:					
- all meals	25	32	24	17	1.4
- only warm meals	53	49	52	0	1.0
- only cold meals	22	19	24	-10	0.8
central heating	58	62	55	1	1.0
good sanitary facilities	54	55	52	-3	0.9

Figure 1-14

Socio-occupational background and the chance of reaching the finals.

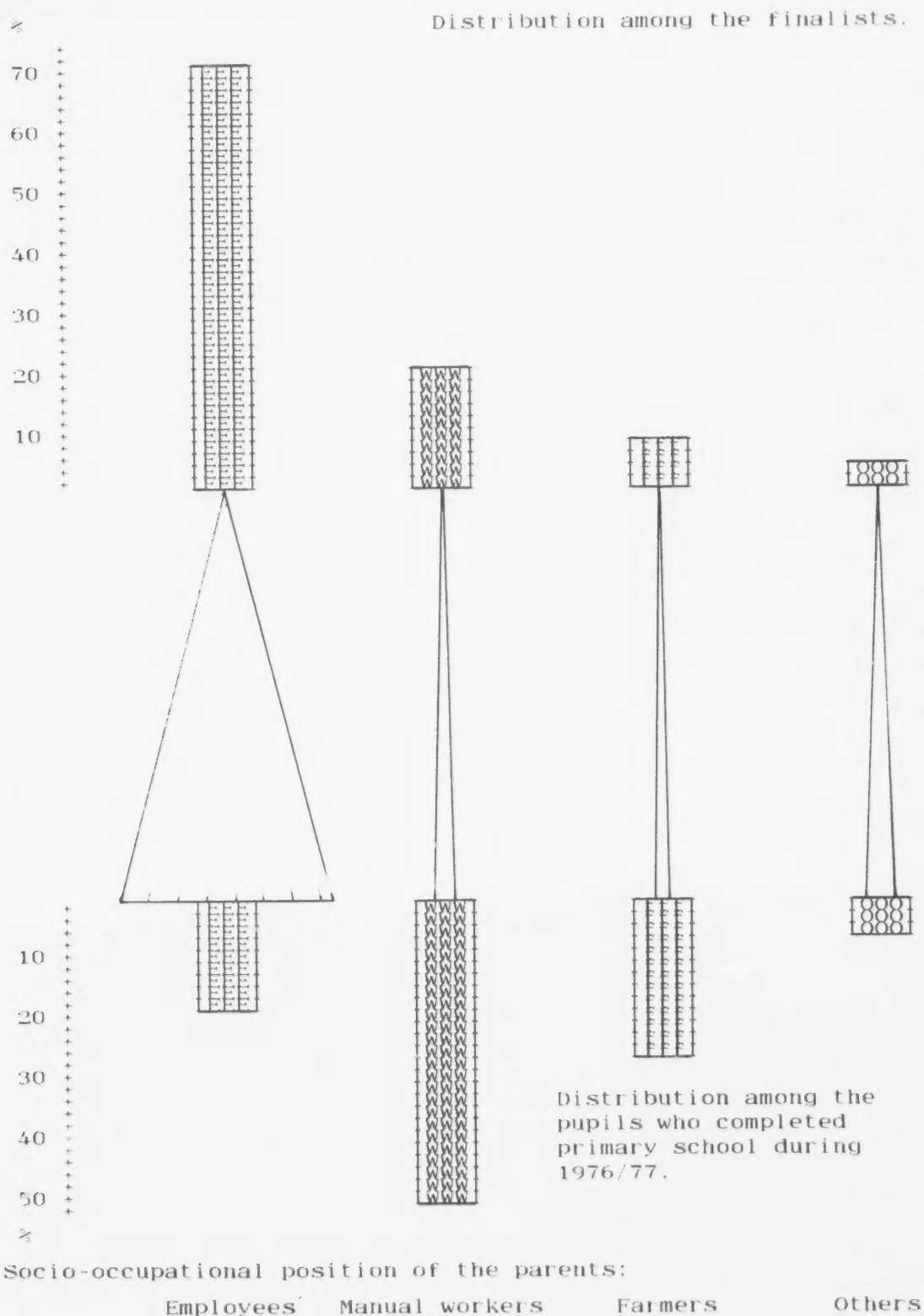


Figure I-14a

Socio-occupational position of the parents and success at the finals.

Success ratio
(SR)

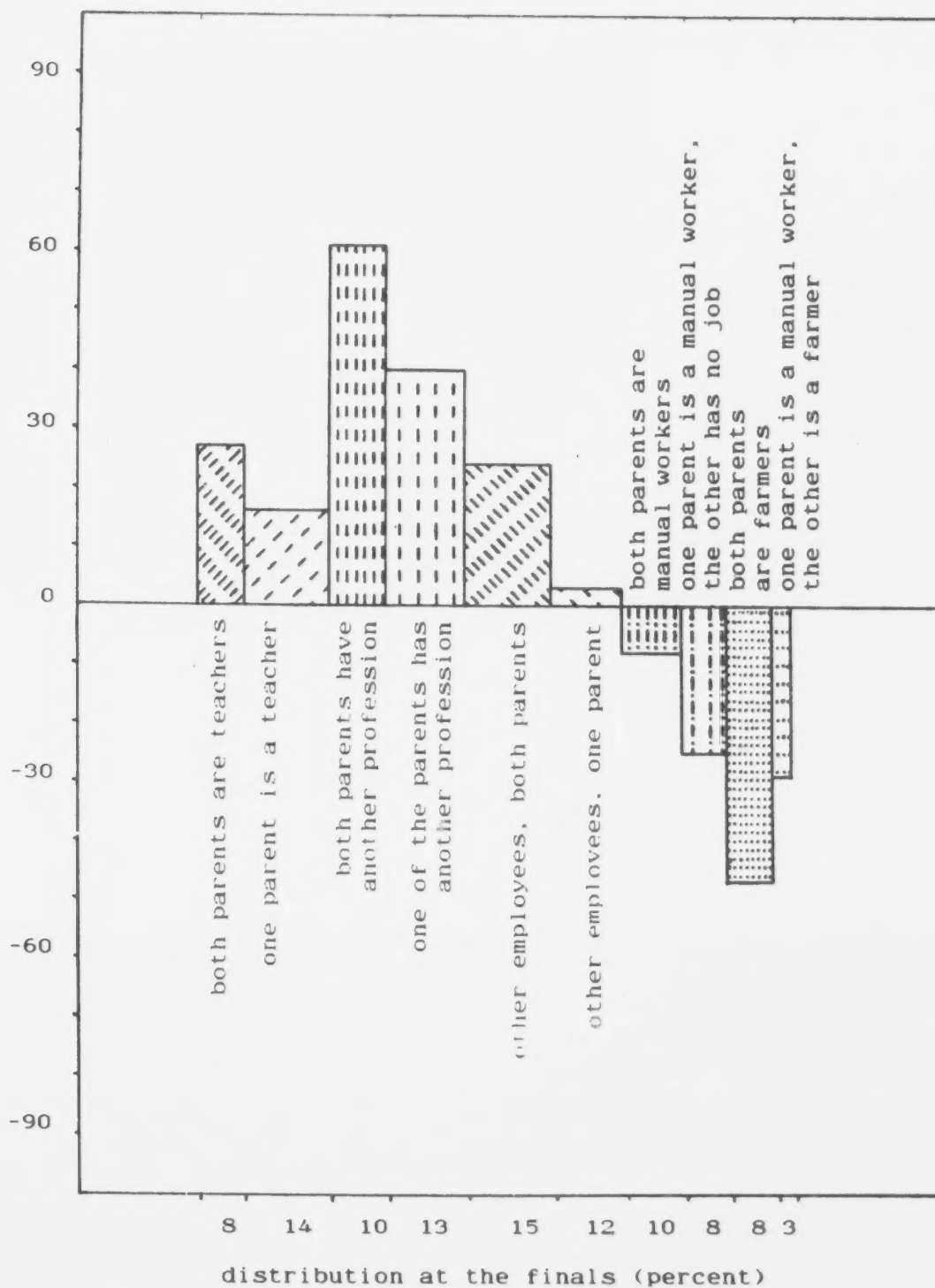


Table IV-sch.

Scores on the index for the quality of the school and success at the finals.

A. TOTAL

Score:	Expected frequency distribu- tion	Total	Schools of:		SR	SQ
			high scorers	low scorers		
Absolute number (=100%)		1165	510	287	28	1.8
4 (favourable)	1.0	2.5	3.6	1.4	15 3	
5	1.7	3.8	3.6	2.7	15 6	
6	6.0	10.0	12.2	6.4	57	3.6
7	11.0	11.3	11.0	10.5	33	2
8	12.4	12.5	13.4	11.9	37	2.2
9	21.3	22.5	19.6	25.1	20	1.5
10	14.0	13.7	14.6	13.2	36	2.1
11	16.1	.0	.0	.0	0 0	
12	8.8	8.8	7.4	10.5	15	1.3
13	4.9	7.5	6.2	7.8	21	1.5
14 - 16	2.8	7.5	8.6	10.5	22	1.6
missing cases		233	92	69		

Table IV-sch.

Scores on the index for the quality of the school and success at the finals.

URBAN SCHOOLS

Score:	Total	Schools of:		SR	SQ
		high	low		
		scorers	scorers		
Absolute number (=100%)	718	374	134	47	2.8
4 (favourable)	3.8	3.5	1.0	11 1	
5	5.0	4.8	3.1	15 3	
6	12.3	14.5	11.2	61	4.1
7	13.6	11.9	13.3	48	2.8
8	16.0	14.5	17.3	45	2.6
9	25.9	22.8	31.6	39	2.3
10	12.3	14.5	13.3	55	3.5
11	.0	.0	.0	0 0	
12	5.0	6.1	7.1	19 7	
13	3.8	6.1	1.0	19 1	
14 - 16 (unfavourable)	2.4	1.3	1.0	4 1	
missing cases	136	64	35		

Table IV-sch.

Scores on the index for the quality of the school and success at the finals.

RURAL SCHOOLS

Score:	Total	Schools of:		SR	SQ
		high	low		
		scorers	scorers		
Absolute number (=100%)	447	136	153	-6	0.9
4 (favourable)	1.1	3.8	.0	4 0	
5	1.1	.9	1.7	1 2	
6	3.7	7.5	4.2	8 5	
7	7.8	6.6	9.2	7 11	
8	7.8	10.4	6.7	11 8	
9	16.7	11.3	19.2	-31	0.5
10	15.5	15.1	14.2	-3	0.9
11	.0	.0	.0	0 0	
12	14.1	14.2	12.5	0	1
13	12.9	9.4	12.5	10 15	
14 - 16 (unfavourable)	19.3	20.8	20.0	-4	0.9
missing cases	99	30	33		

Table V-1

The teacher-promoters' opinion on the effectiveness of the education of gifted pupils only in classes of mixed ability, and success at the finals.

A. TOTAL

Effectiveness of the education of gifted pupils only in classes of mixed ability:	Total	Promoters of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
high	8.7	9.9	8.7	38	2.2
low	83.7	82.4	84.7	31	1.9
depends on other factors	2.7	2.5	1.7	14	5
no opinion	3.2	3.6	3.1	20	9
missing cases	1.4	1.6	1.4		

Table V-1

The teacher-promoters' opinion on the effectiveness of the education of gifted pupils only in classes of mixed ability, and success at the finals.

B. THE SCHOOL'S LOCALITY

Effectiveness of the education of gifted pupils only in classes of mixed ability:	Total	Promoters of:		SR	SQ
		high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	313	232	35	74	6.7
high	12.1	13.4	14.3	72	6.2
low	81.5	80.6	77.1	75	6.9
depends on other factors	2.6	2.6	0	6 0	
no opinion	3.8	3.4	8.6	8 3	
missing cases	0	0	0		
Other town.					
Absolute number (=100%)	453	188	100	31	1.9
high	7.9	6.9	8.0	13 8	
low	84.3	85.1	87.0	30	1.8
depends on other factors	2.6	1.6	1.0	3 1	
no opinion	3.1	3.7	3.0	7 3	
missing cases	2.0	2.7	1.0		
Village.					
Absolute number (=100%)	444	137	151	-5	0.9
high	7.2	8.0	7.9	11 12	
low	85.1	81.8	85.4	-7	0.9
depends on other factors	2.9	3.6	2.6	5 4	
no opinion	2.9	3.6	2.0	5 3	
missing cases	1.8	2.9	2.0		

Table V-2

Ways of educating pupils of outstanding ability, and success at the finals.

Way of educating pupils of outstanding ability:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
A. PREFERRED BY THE PROMOTOR					
out of school:					
in groups	31.4	33.6	31.7	35	2.1
individually	29.5	28.9	26.5	36	2.1
at school:					
individually	16.4	14.2	16.4	25	1.7
in specialised classes	49.9	48.8	58.2	24	1.6
in separate boarding- schools	6.6	5.9	6.6	27	1.7
B. APPLIED					
out of school:					
in groups	57.9	56.0	60.3	29	1.8
individually	92.2	91.2	91.3	32	1.9
at school:					
individually	4.3	4.5	4.5	32	1.9

Table V-6a

Organisational changes in the finalists' primary school
(1971-1976), and success at the finals.

A. TOTAL

Kind of the changes:	Total	Schools of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
comprehensive school	24.8	24.6	25.8	30	1.9
fewer classes	4.7	4.5	5.2	25	1.7
profiled classes	6.3	6.6	5.9	37	2.2
classes for pupils with learning problems	2.4	2.5	3.1	14 9	
out of school activities	27.1	29.3	27.5	35	2.1
infant school	3.1	3.8	1.4	21 4	
resource rooms	28.1	26.0	31.0	24	1.6
no organisational changes	15.9	15.1	15.7	30	1.9
missing cases	16.7	17.4	15.3		

Table V-6a

Organisational changes in the finalists' primary school (1971-1976), and success at the finals.

B. THE SCHOOL'S LOCALITY

Kind of the changes:	Total	Schools of:		SR	SQ
		high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	313	232	35	74	6.7
comprehensive school	17.6	20.7	5.7	92	9+
fewer classes	5.4	5.6	5.7	13 2	
profiled classes	8.6	8.2	14.3	19 5	
classes for pupils with learning problems	1.6	1.3	5.7	3 2	
out of school activities	25.9	26.7	22.9	77	7.8
infant school	3.5	3.9	0	9 0	
resource rooms	22.4	19.8	31.4	61	4.2
no organisational changes	17.3	16.8	14.3	77	7.8
missing cases	21.4	19.8	28.6		
Other town.					
Absolute number (=100%)	453	188	100	31	1.9
comprehensive school	21.2	21.8	26.0	22	1.6
fewer classes	2.6	2.1	1.0	4 1	
profiled classes	7.9	8.0	8.0	15 8	
classes for pupils with learning problems	2.6	3.7	2.0	7 2	
out of school activities	28.3	31.9	27.0	38	2.2
infant school	3.5	3.2	3.0	6 3	
resource rooms	34.7	36.8	36.0	31	1.9
no organisational changes	13.9	12.8	16.0	20	1.5
missing cases	16.8	16.0	13.0		
Village.					
Absolute number (=100%)	444	137	151	-5	0.9
comprehensive school	33.6	35.0	30.5	2	1
fewer classes	6.3	4.8	7.9	7 12	
profiled classes	2.9	2.2	2.6	3 4	
classes for pupils with learning problems	2.7	2.9	3.3	4 5	
out of school activities	27.0	29.9	29.1	-4	0.9
infant school	2.3	4.4	.7	6 1	
resource rooms	25.5	22.6	27.8	-15	0.7
no organisational changes	17.1	15.3	15.9	-7	0.9
missing cases	13.3	15.3	13.9		

Table V-6b

Changes in the methods of working with able pupils in the finalists' primary school (1971-1976), and success at the finals.

A. TOTAL

Kind of the changes:	Total	Schools of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
individualised teaching	42.8	43.1	43.2	32	1.9
new teaching programme	3.1	2.5	3.5	14	10
group teaching	8.9	8.3	7.0	39	2.3
activating methods	22.3	22.1	23.7	29	1.8
competitions in subjects	8.0	8.4	7.7	36	2.1
more interesting out of school activities	18.9	19.9	18.8	35	2.1
other changes	2.6	3.9	1.4	22	4
methods remained unchanged	15.6	12.6	19.9	10	1.2
missing cases	12.8	14.4	10.8		

Table V-6b

Changes in the methods of working with able pupils in the finalists' primary school (1971-1976), and success at the finals.

B. THE SCHOOL'S LOCALITY

Kind of the changes:	Total	Schools of:		SR	SQ
		high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	313	232	35	74	6.7
individualised teaching	43.8	44.4	40.0	76	7.4
new teaching programme	3.8	3.4	5.7	8 2	
group teaching	9.6	8.6	5.7	20 2	
activating methods	19.8	18.1	28.6	62	4.2
competitions in subjects	9.3	10.3	5.7	24 2	
more interesting out of school activities	18.5	19.4	14.3	80	9
other changes	4.2	4.7	2.9	11 1	
methods remained unchanged	16.3	12.5	25.7	53	3.2
missing cases	11.8	13.4	17.1		
Other town.					
Absolute number (=100%)	453	188	100	31	1.9
individualised teaching	45.0	44.1	46.0	29	1.8
new teaching programme	4.2	2.7	5.0	5 5	
group teaching	11.0	9.6	7.0	18 7	
activating methods	21.2	22.4	19.0	38	2.2
competitions in subjects	6.6	5.9	5.0	11 5	
more interesting out of school activities	17.0	16.5	18.0	27	1.7
other changes	3.1	4.3	3.0	8 3	
methods remained unchanged	13.0	11.7	19.0	7	1.2
missing cases	14.3	17.6	11.0		
Village.					
Absolute number (=100%)	444	137	151	-5	0.9
individualised teaching	40.1	39.4	42.4	-8	0.8
new teaching programme	1.4	.7	2.0	1 3	
group teaching	6.3	5.8	7.3	8 11	
activating methods	25.2	28.5	25.8	0	1
competitions in subjects	8.6	8.8	9.9	12 15	
more interesting out of school activities	21.2	25.5	20.5	6	1.1
other changes	1.1	2.2	0	3 0	
methods remained unchanged	17.9	13.9	19.2	-21	0.7
missing cases	11.9	11.7	9.3		

Table V-6c

Changes in the material equipment of the finalists' schools
(1971-1976) and success at the finals.

TOTAL

Kind of the changes:	Total	Schools of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
more appliances	50.3	53.0	50.2	34	2
extension of the building	4.7	3.6	5.2	14	1.3
new canteen	1.6	1.3	2.4	7 7	
new club-room	3.4	3.2	3.1	18 9	
new gymnasium	2.0	2.0	1.7	11 5	
new furniture	26.5	26.0	27.9	29	1.8
overhaul of the building	6.7	6.3	7.3	25	1.7
there were no changes	25.8	25.0	27.9	27	1.7
missing cases	11.9	12.7	8.7		

Table V-6c

Changes in the material equipment of the finalists' schools
(1971-1976) and success at the finals.

LOCALITY WHERE THE SCHOOL HAS ITS SEAT

Kind of the changes:	Total	Schools of:		SR	SQ
		high	low		
		scorers	scorers		
Capital of a province.					
Absolute number (=100%)	313	232	35	74	6.7
more appliances	49.2	48.3	45.7	75	7
extension of the building	4.2	2.6	11.4	6 4	
new canteen	1.0	1.3	0	3 0	
new club-room	2.2	3.0	0	7 0	
new gymnasium	1.6	1.7	2.9	4 1	
new furniture	27.2	26.3	31.4	69	5.5
overhaul of the building	7.0	6.5	8.6	15 3	
there were no changes	28.8	28.0	34.3	69	5.4
missing cases	13.7	15.1	14.3		
Other town.					
Absolute number (=100%)	453	188	100	31	1.9
more appliances	57.4	63.3	62.0	31	1.9
extension of the building	4.4	3.2	5.0	6 5	
new canteen	1.3	.5	1.0	1 1	
new club-room	2.9	3.2	1.0	6 1	
new gymnasium	3.1	3.2	2.0	6 2	
new furniture	28.7	24.5	37.0	11	1.2
overhaul of the building	4.6	5.3	4.0	10 4	
there were no changes	20.5	21.8	16.0	44	2.6
missing cases	11.3	10.6	8.0		
Village.					
Absolute number (=100%)	444	137	151	-5	0.9
more appliances	44.1	46.3	43.7	-2	1
extension of the building	5.4	5.8	4.0	8 6	
new canteen	2.3	2.2	4.0	3 6	
new club-room	4.7	3.6	5.3	5 8	
new gymnasium	1.1	.7	1.3	1 2	
new furniture	23.9	27.7	21.2	9	1.2
overhaul of the building	8.6	7.3	9.3	10 14	
there were no changes	29.0	24.1	34.4	-22	0.6
missing cases	11.3	11.7	7.9		

Table V-9

Study contacts of the teacher-promotor, and success at the finals.

A. TOTAL

Study contacts of the teacher-promotor with:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
teachers in other primary schools:					
often	59	57	60	29	1.8
sometimes	34	37	32	39	2.3
never	4	4	5	18	1.4
other (missing) cases	3	3	3		
teachers in basic vocational schools:					
often	4	4	5	20	1.5
sometimes	32	31	37	23	1.6
never	51	51	49	34	2
other (missing) cases	12	14	8		
teachers in technikum or liceum (grammar school):					
often	12	13	11	41	2.4
sometimes	46	46	45	33	2
never	34	33	38	25	1.7
other (missing) cases	8	8	7		
university:					
often	14	13	14	27	1.8
sometimes	21	22	18	41	2.4
never	54	54	58	29	1.8
other (missing) cases	11	11	10		
the Institute for Teacher Training:					
often	14	15	15	33	2
sometimes	36	36	37	30	1.8
never	40	41	36	37	2.2
other (missing) cases	10	8	11		
other pedagogists:					
often	6	8	5	51	3.1
sometimes	9	9	11	20	1.5
never	61	60	62	30	1.9
other (missing) cases	24	24	21		

Table V-9

Study contacts of the teacher-promotor, and success at the finals.

B. THE SCHOOL'S LOCALITY

Study contacts of the teacher-promotor with:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Capital of a province. Absolute number (=100%)	313	232	35	74	6.7
teachers in other primary schools:					
often	52	56	41	79	8.7
sometimes	42	39	49	67	5
never	3	3	3	6	1
other (missing) cases	3	3	8		
teachers in basic vocational schools:					
often	4	5	3	11	1
sometimes	31	28	40	64	4.6
never	51	53	49	76	7.2
other (missing) cases	14	15	9		
teachers in technikum or liceum (grammar school):					
often	12	11	19	58	3.7
sometimes	47	47	47	73	6.5
never	32	33	25	79	8.4
other (missing) cases	9	9	8		
university:					
often	13	14	17	68	5.3
sometimes	24	22	22	73	6.5
never	51	52	50	74	6.7
other (missing) cases	12	12	11		
the Institute for Teacher Training:					
often	18	18	24	65	4.8
sometimes	38	38	32	76	7.3
never	35	35	26	78	8.2
other (missing) cases	9	9	18		
other pedagogists:					
often	7	7	6	17	2
sometimes	9	8	15	19	5
never	60	62	59	75	7.2
other (missing) cases	24	23	21		

Table V-9

Study contacts of the teacher-promotor, and success at the finals.

B. THE SCHOOL'S LOCALITY

Study contacts of the teacher-promotor with:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Other town. Absolute number (=100%)	453	188	100	31	1.9
teachers in other primary schools:					
often	58	57	57	30	1.9
sometimes	32	36	29	40	2.3
never	5	3	8	6 8	
other (missing) cases	4	4	6		
teachers in basic vocational schools:					
often	4	3	6	5 6	
sometimes	34	33	36	27	1.7
never	53	52	52	30	1.9
other (missing) cases	10	13	6		
teachers in technikum or liceum (grammar school):					
often	14	16	9	54	3.3
sometimes	51	49	52	28	1.8
never	29	29	32	26	1.7
other (missing) cases	6	6	7		
university:					
often	14	13	15	23	1.6
sometimes	18	19	18	33	2
never	58	58	60	29	1.8
other (missing) cases	10	10	7		
the Institute for Teacher Training:					
often	14	13	16	22	1.6
sometimes	34	33	35	28	1.8
never	43	44	40	35	2.1
other (missing) cases	9	10	9		
other pedagogists:					
often	7	10	6	18 6	
sometimes	9	10	8	18 8	
never	63	57	66	24	1.6
other (missing) cases	21	24	20		

Table V-9

Study contacts of the teacher-promotor, and success at the finals.

B. THE SCHOOL'S LOCALITY

Study contacts of the teacher-promotor with:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Village.					
Absolute number (=100%)	444	137	151	-5	0.9
teachers in other primary schools:					
often	65	59	68	-11	0.8
sometimes	31	35	29	4	1.1
never	4	6	3	8 5	
other (missing) cases	1	0	0		
teachers in basic vocational schools:					
often	5	4	5	5 7	
sometimes	32	33	38	-12	0.8
never	50	49	48	-4	0.9
other (missing) cases	14	15	10		
teachers in technikum or liceum (grammar school):					
often	11	13	10	9	1.2
sometimes	40	38	39	-6	0.9
never	39	39	45	-12	0.8
other (missing) cases	9	10	6		
university:					
often	14	12	13	-11	0.8
sometimes	21	26	17	16	1.4
never	52	53	58	-10	0.8
other (missing) cases	12	9	11		
the Institute for Teacher Training:					
often	12	13	12	0	1
sometimes	38	36	40	-11	0.8
never	40	46	36	7	1.1
other (missing) cases	10	5	11		
other pedagogists:					
often	5	6	4	8 6	
sometimes	10	8	13	-27	0.6
never	59	60	61	-6	0.9
other (missing) cases	26	26	23		

Table V-10

Study contacts which the teacher-promotor considers the most effective for deepening his knowledge on the subject of the competition, and success at the finals.

A. TOTAL

Kind of the study contact the teacher-promotor considers most effective:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
groups for private study	26	25	29	25	1.7
conferences on methods	18	20	15	45	2.6
contacts with scientific staff	27	29	25	38	2.2
NURT	3	3	5	14	14
courses in the subject	22	23	18	42	2.5
attendance of lessons of other teachers	9	8	13	12	1.3
contacts with colleagues	15	14	15	29	1.8
other (missing) cases	23	23	26		

Table V-10

Study contacts which the teacher-promotor considers the most effective for deepening his knowledge on the subject of the competition, and success at the finals.

B. THE SCHOOL'S LOCALITY

Kind of the study contact the teacher-promotor considers most effective:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	313	232	35	74	6.7
groups for private study	19	18	23	67	5.1
conferences on methods	18	19	17	76	7.3
contacts with scientific staff	27	30	23	79	8.6
NURT	3	3	9	6 3	
courses in the subject	24	27	6	94	9+
attendance of lessons of other teachers	9	8	14	19 5	
contacts with colleagues	17	15	14	74	6.8
other (missing) cases	25	26	20		
Other town.					
Absolute number (=100%)	453	188	100	31	1.9
groups for private study	29	31	28	35	2.1
conferences on methods	15	19	7	67	5
contacts with scientific staff	27	29	26	36	2.1
NURT	3	2	4	3 4	
courses in the subject	20	22	22	31	1.9
attendance of lessons of other teachers	8	9	11	16 11	
contacts with colleagues	15	16	12	43	2.5
other (missing) cases	24	19	30		
Village.					
Absolute number (=100%)	444	137	151	-5	0.9
groups for private study	29	29	32	-9	0.8
conferences on methods	20	23	19	3	1.1
contacts with scientific staff	27	28	26	0	1
NURT	4	4	5	5 7	
courses in the subject	22	18	19	-7	0.9
attendance of lessons of other teachers	11	8	13	-29	0.6
contacts with colleagues	13	10	17	-30	0.5
other (missing) cases	21	21	26		

Table V-11

The teacher-promotor's conditions for study contacts, and success at the finals.

A. TOTAL

Quality of the teacher-promotor's conditions for study contacts:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
favourable	60	59	59	32	1.9
unfavourable because of:					
personal reasons	19	19	20	30	1.8
situation at school	5	5	4	37	2.2
other reasons	12	12	11	35	2.1
missing cases	5	4	5		

Table V-11

The teacher-promotor's conditions for study contacts, and success at the finals.

B. THE SCHOOL'S LOCALITY

Quality of the teacher-promotor's conditions for study contacts:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	313	232	35	74	6.7
favourable	58	61	53	76	7.4
unfavourable because of:					
personal reasons	21	19	22	70	5.6
situation at school	5	4	8	9 3	
other reasons	11	13	8	81	9.7
missing cases	4	3	8		
Other town.					
Absolute number (=100%)	453	188	100	31	1.9
favourable	63	61	65	28	1.8
unfavourable because of:					
personal reasons	18	19	20	27	1.8
situation at school	4	6	0	12 0	
other reasons	10	11	10	33	2
missing cases	4	3	5		
Village.					
Absolute number (=100%)	444	137	151	-5	0.9
favourable	57	55	57	-7	0.9
unfavourable because of:					
personal reasons	19	20	20	-5	0.9
situation at school	5	4	6	5 9	
other reasons	14	15	13	0	1
missing cases	5	7	4		

Table V-12

The teacher-promotor's working week, and success at the finals.

A. TOTAL

The teacher-promotor's weekly amount of lesson hours:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
more than 27	64	63	66	30	1.9
between 25 and 27	17	19	16	38	2.2
less than 25	15	14	14	33	2
missing cases	3	3	3		

Table V-12

The teacher-promotor's working week, and success at the finals.

B. THE SCHOOL'S LOCALITY

The teacher-promotor's weekly amount of lesson hours:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Capital of a province. Absolute number (=100%)	313	232	35	74	6.7
more than 27	57	57	67	69	5.5
between 25 and 27	20	21	17	78	8.2
less than 25	19	18	14	79	8.4
missing cases	4	4	3		
Other town. Absolute number (=100%)	453	188	100	31	1.9
more than 27	64	66	58	37	2.2
between 25 and 27	18	19	21	25	1.7
less than 25	13	12	12	29	1.8
missing cases	4	3	9		
Village. Absolute number (=100%)	444	137	151	-5	0.9
more than 27	70	71	72	-5	0.9
between 25 and 27	14	15	13	2	1.1
less than 25	14	11	15	-21	0.7
missing cases	2	3	0		

Table V-12a

Weekly amount of time the teacher-promotor spends at activities with pupils outside of school hours, and success at the finals.

A. TOTAL

Weekly amount of time:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
negligible	2	3	1	14	3
up to 2 hours	50	49	47	34	2
between 2 and 5 hours	35	35	36	31	1.9
more than 5 hours	9	9	11	20	1.5
missing cases	5	4	5		

Table V-12a

Weekly amount of time the teacher-promotor spends at activities with pupils outside of school hours, and success at the finals.

B. THE SCHOOL'S LOCALITY

Weekly amount of time:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	313	232	35	74	6.7
negligible	3	3	3	7 1	
up to 2 hours	47	46	56	69	5.4
between 2 and 5 hours	36	36	28	79	8.4
more than 5 hours	9	10	11	23 4	
missing cases	5	5	3		
Other town.					
Absolute number (=100%)	453	188	100	31	1.9
negligible	2	4	1	7 1	
up to 2 hours	50	49	43	36	2.1
between 2 and 5 hours	32	33	37	25	1.7
more than 5 hours	10	10	10	18 10	
missing cases	6	5	9		
Village.					
Absolute number (=100%)	444	137	151	-5	0.9
negligible	1	0	1	0 1	
up to 2 hours	52	55	48	3	1.1
between 2 and 5 hours	36	36	37	-6	0.9
more than 5 hours	8	5	12	7 18	
missing cases	3	3	3		

Table V-12b

Weekly amount of time the teacher-promotor spends at volunteer work out of school, and success at the finals.

A. TOTAL

Weekly amount of time:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
negligible	24	25	20	41	2.4
up to 2 hours	52	51	55	29	1.8
between 2 and 5 hours	10	10	9	34	2
more than 5 hours	3	2	3	12	10
missing cases	12	11	12		

Table V-12b

Weekly amount of time the teacher-promotor spends at volunteer work out of school, and success at the finals.

B. THE SCHOOL'S LOCALITY

Weekly amount of time:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	313	232	35	74	6.7
negligible	27	28	26	75	7.1
up to 2 hours	46	44	40	76	7.4
between 2 and 5 hours	8	9	6	21 2	
more than 5 hours	5	4	9	10 3	
missing cases	14	15	20		
Other town.					
Absolute number (=100%)	453	188	100	31	1.9
negligible	27	24	27	26	1.7
up to 2 hours	50	56	47	38	2.2
between 2 and 5 hours	9	10	12	20	1.5
more than 5 hours	1	0	0	0 0	
missing cases	13	10	14		
Village.					
Absolute number (=100%)	444	137	151	-5	0.9
negligible	18	22	15	15	1.4
up to 2 hours	58	57	63	-10	0.8
between 2 and 5 hours	11	12	9	16 13	
more than 5 hours	3	1	5	2 7	
missing cases	10	8	9		

Table V-13

Organisations of which the teacher-promotor is a member, and success at the finals.

A. TOTAL

the teacher-promotor is a member of:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
the United Workers' Party	38	39	38	34	2
another political party	7	8	6	41	2.4
the Teachers' Union	15	15	15	34	2
Polish Scouting	7	4	8	2	1
another organisation	13	13	11	38	2.3
no organisation	31	30	31	32	1.9
missing cases	8	7	9		

Table V-13

Organisations of which the teacher-promotor is a member, and success at the finals.

B. THE SCHOOL'S LOCALITY

the teacher-promotor is a member of:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Capital of a province. Absolute number (=100%)	313	232	35	74	6.7
the United Workers' Party	41	41	37	76	7.2
another political party	4	6	0	13 0	
the Teachers' Union	19	18	31	58	3.8
Polish Scouting	6	5	6	12 2	
another organisation	12	12	9	80	9
no organisation	30	28	40	65	4.6
missing cases	8	9	3		
Other town. Absolute number (=100%)	453	188	100	31	1.9
the United Workers' Party	36	37	37	30	1.9
another political party	5	7	6	14 6	
the Teachers' Union	15	16	13	41	2.4
Polish Scouting	6	4	9	8 9	
another organisation	12	12	8	48	2.9
no organisation	34	34	31	35	2.1
missing cases	7	4	10		
Village. Absolute number (=100%)	444	137	151	-5	0.9
the United Workers' Party	39	40	38	-3	0.9
another political party	9	12	8	16 12	
the Teachers' Union	11	9	12	-16	0.7
Polish Scouting	7	4	9	5 13	
another organisation	15	16	14	2	1
no organisation	29	29	28	-4	0.9
missing cases	9	10	11		

Table V-14

The teacher-promotor's formal education and success at the finals.

TOTAL

Kind of the promotor's formal education:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
secondary education:					
non-pedagogical	0	0	1	1	2
pedagogical	1	1	2	7	5
non-academic tertiary:					
in the subject of the competition	63	61	67	28	1.8
in another subject	4	5	3	44	2.6
university:					
in the subject of the competition	26	28	20	47	2.8
in another subject	3	3	3	16	9
missing cases	3	2	4		

Table V-14

The teacher-promotor's formal education and success at the finals.

LOCALITY WHERE THE SCHOOL HAS ITS SEAT

Kind of the promotor's formal education:	Total	Promotors of:		SR	SO
		high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	313	232	35	74	6.7
secondary education:					
non-pedagogical	0	0	0	1 0	
pedagogical	2	2	3	4 1	
non-academic tertiary:					
in the subject of the competition	56	55	53	74	6.7
in another subject	5	5	6	12 2	
university:					
in the subject of the competition	31	31	31	74	6.6
in another subject	3	3	6	8 2	
missing cases	3	3	3		
Other town.					
Absolute number (=100%)	453	188	100	31	1.9
secondary education:					
non-pedagogical	1	0	1	0 1	
pedagogical	1	1	2	1 2	
non-academic tertiary:					
in the subject of the competition	62	63	64	30	1.9
in another subject	4	5	3	10 3	
university:					
in the subject of the competition	26	26	19	44	2.6
in another subject	2	3	2	5 2	
missing cases	4	2	9		
Village.					
Absolute number (=100%)	444	137	151	-5	0.9
secondary education:					
non-pedagogical	0	0	1	0 1	
pedagogical	2	1	1	2 2	
non-academic tertiary:					
in the subject of the competition	69	68	73	-8	0.8
in another subject	4	3	3	4 5	
university:					
in the subject of the competition	22	24	17	12	1.3
in another subject	2	2	3	3 5	
missing cases	2	1	1		

Table V-15

The teacher-promotor's years of work experience and success at the finals.

TOTAL

Years of work experience of the teacher promotor:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
up to 5	4	4	5	18	1.4
6 - 10	16	15	18	23	1.6
11 - 15	21	21	22	29	1.8
more than 15	57	60	52	38	2.2
missing cases	1	1	2		

Table V-15

The teacher-promotor's years of work experience and success at the finals.

LOCALITY WHERE THE SCHOOL HAS ITS SEAT

Years of work experience of the teacher promotor:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	313	232	35	74	6.7
up to 5	4	3	11	7 4	
6 - 10	14	14	6	89	9+
11 - 15	20	21	22	72	6.1
more than 15	59	60	58	74	6.6
missing cases	2	1	3		
Other town.					
Absolute number (=100%)	453	188	100	31	1.9
up to 5	3	2	1	4 1	
6 - 10	15	15	18	23	1.6
11 - 15	23	20	28	15	1.4
more than 15	57	62	48	42	2.4
missing cases	2	0	5		
Village.					
Absolute number (=100%)	444	137	151	-5	0.9
up to 5	7	7	6	9 9	
6 - 10	18	14	21	-24	0.6
11 - 15	20	22	19	3	1.1
more than 15	56	58	54	-1	1
missing cases	0	0	1		

Table V-16

Age of the teacher promotor and success at the finals.

TOTAL

Age of the promotor:	Total	Promotors of:		SR	SQ
		high	low		
		scorers	scorers		
Absolute number (=100%)	1212	557	287	32	1.9
up to 25 years	2	1	2	8 6	
26 - 30 years	18	16	22	18	1.4
31 - 35 years	22	22	22	33	2
36 - 50 years	50	53	45	39	2.3
51 - 60 years	5	5	6	18	1.4
61 years and over	1	1	1	5 2	
missing cases	2	1	2		

Table V-16

Age of the teacher promotor and success at the finals.

LOCALITY WHERE THE SCHOOL HAS ITS SEAT

Age of the promotor:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Capital of a province.					
Absolute number (=100%)	313	232	35	74	6.7
up to 25 years	1	1	6	2 2	
26 - 30 years	15	14	11	78	8.3
31 - 35 years	23	24	22	75	6.9
36 - 50 years	53	52	58	70	5.8
51 - 60 years	4	6	0	14 0	
61 years and over	1	1	0	3 0	
missing cases	3	2	3		
Other town.					
Absolute number (=100%)	453	188	100	31	1.9
up to 25 years	2	2	0	4 0	
26 - 30 years	17	15	21	14	1.3
31 - 35 years	23	21	26	21	1.5
36 - 50 years	49	57	40	46	2.7
51 - 60 years	6	3	8	6 8	
61 years and over	1	1	0	2 0	
missing cases	3	1	5		
Village.					
Absolute number (=100%)	444	137	151	-5	0.9
up to 25 years	2	1	3	2 4	
26 - 30 years	22	20	24	-14	0.8
31 - 35 years	19	21	19	0	1
36 - 50 years	49	51	45	1	1
51 - 60 years	6	4	7	6 10	
61 years and over	0	0	1	0 2	
missing cases	1	1	1		

Table V-17.

The teacher-promotor's marital position and success at the finals.

A. TOTAL

The teacher-promotor's marital position:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
women:	84.1	85.3	82.9	33	2.0
married	68	71	65	36	2.1
unmarried:	16	14	18	20	1.5
never been married	11	9	13	15	1.4
divorced	3	3	3	19 9	
widowed	2	2	2	9 6	
men:	13.8	13.6	13.6	32	1.9
married	12	12	12	33	2.0
unmarried:	1	1	1	7 4	
never been married	1	1	1	6 2	
divorced	0	0	0	1 1	
widowed	0	0	0	0 1	
missing cases	2	1	3		

Table V-17.

The teacher-promotor's marital position and success at the finals.

B. THE SCHOOL'S LOCALITY

The teacher-promotor's marital position:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Capital of a province. Absolute number (=100%)	313	232	35	74	6.7
women:	84	84	83	74	6.7
married	72	71	69	74	6.6
unmarried:	12	13	11	76	7.5
men:	14	15	14	75	7.0
married	13	15	14	74	6.8
unmarried:	0	0	0	1 0	
missing cases	2	1	6		
Other town. Absolute number (=100%)	453	188	100	31	1.9
women:	84	87	81	34	2.0
married	66	71	61	37	2.2
unmarried:	18	16	20	20	1.5
men:	13	12	13	26	1.7
married	11	9	11	17 11	
unmarried:	2	3	2	5 2	
missing cases	3	1	6		
Village. Absolute number (=100%)	444	137	151	-5	0.9
women:	84	85	85	-4	0.9
married	68	73	67	0	1
unmarried:	16	12	18	-22	0.6
men:	15	14	14	-5	0.9
married	14	13	13	-3	0.9
unmarried:	1	1	1	1 2	
missing cases	1	1	1		

Table V-18

Size of the teacher-promotor's household and success at the finals.

A. TOTAL

number of persons in the teacher-promotor's household:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
one or two persons	15	14	20	17	1.4
a single person	6	4	8	-2	1
two persons	10	10	11	27	1.8
three persons	22	23	20	40	2.3
four persons	37	38	36	35	2.1
five or more persons	23	22	21	35	2.1
five persons	16	16	13	40	2.3
six persons	5	5	6	24	1.6
more than six persons	2	2	2	9 5	
missing cases	3	2	4		

Table V-18

Size of the teacher-promotor's household and success at the finals.

B. THE SCHOOL'S LOCALITY

number of persons in the teacher-promotor's household:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Capital of a province. Absolute number (=100%)	313	232	35	74	6.7
one or two persons	12	13	14	72	6.2
three persons	25	24	31	67	5
four persons	39	38	33	76	7.3
five or more persons	21	24	17	80	9.2
missing cases	2	2	6		
Other town. Absolute number (=100%)	453	188	100	31	1.9
one or two persons	16	13	22	4	1.1
three persons	24	27	25	33	2
four persons	39	42	35	39	2.3
five or more persons	18	17	12	45	2.7
missing cases	4	2	6		
Village. Absolute number (=100%)	444	137	151	-5	0.9
one or two persons	17	18	19	-9	0.8
three persons	17	18	13	11	1.3
four persons	34	34	37	-10	0.8
five or more persons	30	28	28	-3	0.9
missing cases	2	1	3		

Table V-19

Availability of a separate room to study at the
teacher-promotor's home, and success at the finals.

A. TOTAL

Availability of a separate room to study for the promotor at home:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Absolute number (=100%)	1212	557	287	32	1.9
yes, there is a study	51	50	52	30	1.9
no, there is no separate room to study	48	49	45	36	2.1
missing cases	2	1	3		

Table V-19

Availability of a separate room to study at the teacher-promotor's home, and success at the finals.

B. THE SCHOOL'S LOCALITY

Availability of a separate room to study for the promotor at home:	Total	Promotors of:		SR	SQ
		high scorers	low scorers		
Capital of a province. Absolute number (=100%)	313	232	35	74	6.7
yes, there is a study	44	47	33	80	9.1
no, there is no separate room to study	54	51	58	70	5.1
missing cases	3	2	8		
Other town. Absolute number (=100%)	453	188	100	31	1.9
yes, there is a study	48	48	48	31	1.9
no, there is no separate room to study	50	51	46	35	2.1
missing cases	2	1	6		
Village. Absolute number (=100%)	444	137	151	-5	0.9
yes, there is a study	58	57	59	-7	0.9
no, there is no separate room to study	41	43	40	-2	1
missing cases	1	1	1		

Table VI-8

Selection-principles at the competitions.

Selection-principle	Promotors of finalists who are children of:							
	employees		workers		farmers		total	
	used	pre-fer-red	used	pre-fer-red	used	pre-fer-red	used	pre-fer-red
given								
score	70.4	62.6	68.6	60.1	66.7	53.6	69.4	60.3
fixed								
number	26.1	20.6	28.4	21.6	26.1	21.1	26.7	21.2
preferences	2.2	6.4	2.7	7.3	4.1	13.1	2.7	8.1
of which:								
by additio-								
nal points	1.5	5.2	2.0	6.7	2.3	10.9	1.7	6.9
extra quota								
of:								
workers' &								
farmers'								
children	1.1	3.5	.6	4.6	2.9	7.3	1.2	4.4
rural								
children	.8	1.5	1.6	2.3	2.2	2.2	1.4	2.3
girls	-	-	-	-	-	-	-	-

APPENDIX B

QUESTIONNAIRES

I	Auditory questionnaire for participants	504
II	Questionnaire for finalists in secondary school and their class-mates	508
III	Characterization of the finalist	509
IV	Information about the school	511
V	The education of talented pupils	513
VI	Competitions in school subjects	515
VII	Questionnaire for the organizers	517
VIII	(not included = questionnaire III)	
IX	Changes in life after entrance into secondary education	518

:

Questionnaire I

(Auditory questionnaire for participants in the competition).

Polish Academy of Science IRWiR
00-330 Warsaw, Nowy Swiat 72

Provincial competition
at date

1. Name and forename
2. Date and place of birth
3. Address
4. Primary school a) 8-year b) comprehensive at
5. Number of pupils in the school Name of the teacher
a) of Polish language b) of mathematics
6. Place at the competition a) region b) province
score
7. Marks: Polish .., Russian .., history .., geography .., /
biology .., mathematics .., physics .., chemics .., /
technical work .., plastic work .., music .., physical
education ...
8. Rank at school in: a) humanities b) science c) art
9. Is there a a) club room b) library c) permanent cinema
d) other institution in your place of residence ?
10. Distance from home to a) primary school with 8 grades
b) liceum or technikum ..., c) capital of the province
11. Do you travel to school? How many km? .. By what?
12. Number of persons in the family ... Which is your birthrank?
13. Education a) of mother b) of father
14. Occupation a) of mother b) of father
15. Do you have a) an own room b) a separate place c) no perma-
nent place to work?
16. Is there a library at home? ... How many books? Mention
titles of books you possess and which were helpful when you
prepared for the competition
17. What things do you collect? How many of these have you?
18. How many hours a-day do you help your parents? .. With what?
19. Do you have free time? ... How many hours daily?
What do you mostly do in your free time?
20. What interests you most? a) in learning ... b) out-of-school
21. Since how long you are interested in Polish? .. mathematics?
22. What or who caused that interest?
23. Which competitions you have participated in? Please mention
the year and which place you attained
24. What did you decide to participate in today's competition? .
25. Did you prepare for the competition a) daily b) each other
day c) less d) not
26. What or who helped you most when preparing for this contest?
27. Which circles of interest do you belong to and how much time
weekly do you spent at these?
28. How this membership of circles of interest influenced your
interest a) in Polish b) in other subjects
29. Which school organisations do you belong to? Which functions
do you have in these organisations?
30. Did school organisations have an influence on your inte-
rests? If so, which organisations and in which way?
31. Which occupation would you like to have in future?
32. Where would you like to live? a) in town b) in the country
c) in an other country d) otherwise
33. What would you consider your greatest success in life?

Instruction to questionnaire 1.

You are requested to fill in this questionnaire for the Polish Academy of Science. The purpose of this questionnaire is to study your life-circumstances and what you wish to attain in future. A team of the Academy is especially interested in some of you. You are requested to fill in this questionnaire frankly and attentively.

- In the upper right-hand corner you fill in the name of the competition, f.i. Provincial Competition in Polish Language, Mathematics. Underneath you fill in the name of the place where the competition is held and the date of the contest.
- At point 1 you fill in your name and forename, as well as the grade you are in.
- At point 2 you fill in the date and place of your birth.
- At point 3 you fill in your permanent address, with post code, street, name of the municipality (when you live in the countryside).
- At point 4 you fill in the number of the primary school you attend and its precise address with post code, street, name of the municipality.
- At point 5 you fill in the number of pupils in the school you are attending now and the name of your teacher for the subject of today's competition.
Attention! At this point, as well as at following points where is spoken of Polish language under "a" and of mathematics under "b", you fill in the data for the subject in which you are examined today. When you do not know the precise number of pupils in your school, you mention the approximate number. An approximate answer may be given to all questions about numeric data.
- Point 6 "b" is not to be filled out.
- At point 7 you fill in the marks for the past semestre. Before the mark for Polish, you mention the mark for civil education, which subject had not been indicated appropriately when the questionnaire was printed.
- At point 8 you fill in your rank in your class (from one to five), for humanities, math and science and artistic subjects (which have been divided by slices at point 7 for clarity). If you was not among the first five, you fill in the letter "p".
- At point 9 you underline the appropriate answer. When there is another cultural-educational institution than those specified here, mention it sub "d".
- At point 10 you fill in how many km. it is from your present place of residence to the primary school with 8 grades (the one you attend), to the nearest liceum or technikum and to the capital of the province.

- At point 11 you fill in whether you travel to school and if so, how many km. and by which means of transport.
- After having filled in at point 12 how many persons there are in your family and which birth-order you have among the children, you also mention how many children there are in your family.
- At point 13 you fill in the education of your parents, the name of the school they completed and the number of grades when the school was not completed. When one of the parents is lacking, and when you live with a guardian over two years, you fill in the data of the guardian, indicating that your answer concerns a guardian. When you live in an orphanage, you only fill in "orphanage".
- Point 14 is filled in similarly. If a parent has two occupations, f.i. a farm and a job elsewhere, you mention both. When the parents have a farm, please mention how many ha.
- At point 15 you underline the appropriate answer. When you have no own room to work, you mention the number of rooms at home except the kitchen.
- At point 16 you fill in the number of books at home, except school books, and you mention the titles and authors of your books that were most helpful when you prepared for the competition.
- At point 17 you fill in which things you collect and how many you have of these.
- At point 18 you fill in how many hours daily you help your parents and with what most.
- At point 19 you fill in whether you have free time, if so, how many hours daily and what do you do during that time. Free time is the time you have after having done your home work and other obligatory work for home, school etc.
- At point 20 you fill in what interests you most in learning and out of school.
- At point 21 you fill in how long you have an interest in the subject of today's competition.
- At point 22 you fill in what or who caused your interest in the subject on which you write in today's competition.
- At point 23 you fill in which competitions - exceeding school level - you participated in. Mention the name of that competition, the year when it was held and the place you attained in it.
- At point 24 you fill in what did you decide to participate in today's competition.
- At point 25 you underline the answer that fits to the frequency of your preparation for today's competition.

- At point 26 you fill in what or who was most helpful to you when you prepared for today's competition.
- At point 27 you fill in the circles of interest you belong to and how much time weekly you spend at it. When you do not belong to any circle, please write why.
- At point 28 you fill in how membership of circles of interest influenced your interest in the subject of today's contest. When membership of circles of interest did not influence the development of your interests, please write why.
- At point 29 you fill in the school organisations you belong to and which functions do you have in these. When you have no function in any organisation, please write why.
- At point 30 you fill in which organisations had an influence on the development of your interests and in which way. When organisations did not influence this development, please write why.
- At point 31 you fill in which occupation you would like to have in future.
- At point 32 you underline where you would like to live.
- At point 33 you fill in which attainment would be the greatest success in your life.
- Read the questionnaire once again and complete the missing answers.

Questionnaire II
(for finalists in secondary school and their class-mates)

- I. Name and forename
- II. In which competitions you took part in 1976?
- III. Permanent Address
Post-code street (post address) Province
- IV. Occupation a) of father
 b) of mother
- V. Education a) of father
 b) of mother
- VI. Marks in the past semestre: Polish Russian
history Mathematics Physics Chemics
- VII. Who is your best class-mate? Mention no more than 3 names.
1.
2.
3.

Questionnaire III
(Characterisation of the finalist).

CHARACTERISATION OF THE PUPIL

Please fill in a separate questionnaire for each pupil who took part in the provincial competition

Name and forename of the pupil
Address of the school
Post-code Province

1. How do you judge the pupil in comparison to the class-mates with regard to the following traits (Please indicate your answer by a cross)	there were pupils better than him/her	some pupils were better than him/her	nobody came up to him/her	difficult to estimate	please do not write on this blank space
1. Knowledge about the subject you are teaching					
2. Skillful application of given principles, instructions etc. to solve new problems					
3. Reliable and logical memory for facts/data, names, formulas, rules etc.					
4. Diligence and perseverance at the realisation of given tasks					
5. Correctness and originality of oral statements					
6. Aptitude of formulation in writing					
7. Leading capacities (ability to take a leading function)					
8. Ability to submit to others					
9. Comradeship and helpfulness					
10. A sense of humour					

11. In which way has participation in the the competition influenced the pupil - in your opinion (his/her knowledge interests, life-style, f.i. by a gain or loss of self-confidence or other traits)?
12. How do you estimate the pupil's knowledge of the subject you are teaching, in comparison to other pupils you ever taught?
 1. I never knew an equally able pupil
 2. I knew a few as able as this pupil
 3. I knew some more able pupils
 4. other answers:
13. Did the pupil demonstrate creative abilities (coming to light in problem solving, doing original work following new, self invented principles) in the following fields:
 0. no, he/she did not
 1. literature (writing poems, stories, critics etc.)
 2. history, politics
 3. geography, nature
 4. mathematics
 5. physics, chemics
 6. music
 7. plastic art
 8. technology
 9. performing arts
 - x. sport
 - n. other, which?
14. Please give examples of work or other attainments you consider the most creative, remarkable:
15. How would you describe the pupil's temperament?
 1. balanced
 2. self-possessed
 3. phlegmatic
 4. unbalanced
 5. impetuous
 6. aggressive
16. When the pupil was unbalanced, impetuous or aggressive, in which situations these traits mostly occurred?
17. Did you remark some other negative traits of the pupil's character?
 1. no
 2. yes, which?
18. Had the pupil some physical defect (cripplehood, sickliness or traits others mock at, f.i. corpulence, a very short stature etc.)?
 1. no
 2. yes, which?
19. Other remarks and opinions on the pupil:

After having filled in this questionnaire, you are pleased to put it into the included envelope and to post it OPEN.

THANKS FOR YOUR HELP

Questionnaire IV
(information about the school)

INFORMATION ABOUT THE EQUIPMENT OF THE SCHOOL
(Please fill in this questionnaire in co-operation with other teachers insofar as as they had finalists of the competition in Polish or mathematics in 1976)

1. Number of pupils at school:
2. Number of class rooms:
3. Which is the percentage of children from the following socio-occupational milieux among all pupils at school?
 1. children of manual workers about %
 2. children of employees about %
 3. farmers' children about...%
 4. children of members of agricultural co-operatives about % and of state farm workers about %
 5. children of self-employed crafts men about %
 6. others about %
4. What percentage of the pupils travels or walks to school from other places?
5. How many teachers are employed at school?
 - a) full-time
 - b) part-time
6. How many teachers completed university education?
7. Which subjects do they teach?
8. Which subjects are taught by teachers who are studying at the moment?
9. Does the school (pupils or teachers) obtain prizes and distinctions more often than other schools you know?
 1. yes, more often
 2. as often as other schools
 3. less often
 4. obtains no prizes and distinctions
 5. other answers:
10. Can you mention the prizes and distinctions, the school is the most proud of or - in your view - ought to be proud of (prizes for the school, teachers and pupils are meant)?
11. Are there studies and subject rooms at school?
 1. yes
 2. no
12. If so, for which subjects?
13. Which one you consider the best equipped?
14. Is there a gymnasium at school?
 1. yes
 2. no
15. If so, is it sufficiently large (according to prescriptions)?
16. What is the approximate number of books in the school library?
17. Are the books in the library grouped thematically?
 1. no
 2. yes, which groups?

18. Does the collection of the library include all the books necessary for the subject you teach?
 1. yes
 2. no, the following important titles are lacking:
 1. no
 2. yes, it has places
19. Is there a reading room at school?
 1. no
 2. yes, which?
20. Are there circles of interest at school?
 1. no
 2. yes, which?
21. Which of these are the most active?
22. Which of the school (youth) organisations is the most active?
23. Why do you think so?
24. Is there a club room at school?
 1. yes
 2. no
25. Has the club room a sufficiently large surface (appropriate room)?
 1. yes
 2. no, why?
26. What is the kind of employment of the personnel in the club room?
 1. volunteer work
 2. partly paid
 3. few volunteer work, they have full-time jobs
 4. other, which?
27. Which is the kind of the educational and forming activities in the club room (f.i. circles of interest)?
28. Is there a canteen at school?
 1. yes
 2. no
29. What meals are provided daily?
 1. warm meals?
 2. other meals, which?
30. How much must a pupil monthly pay for the meals?
31. How is the school heated?
 1. tile stove
 2. central heating
 3. other, which?
32. Is there a toilet inside the building?
 1. yes
 2. no

Questionnaire V
(the education of talented pupils)

1. Can pupils of outstanding ability be educated effectively in the course of a uniform teaching programme and activities with the whole class?
 1. yes
 2. no
 3. no opinion
 4. other answers:
2. Which of the specified ways of separate education of pupils of outstanding ability would you apply when the decision of changes in the school system would be entirely your's?
 1. uniform lessons, but organisation of the education of pupils of outstanding ability in the course of out of school activities, f.i. circles of interest
 2. uniform lessons, but elaboration of an individual programme to be realised by the pupil out of lesson hours, guided and controlled by the teacher
 3. development of an individual programme, to be realised by the pupil during the lessons
 4. organisation of classes with a special accent (humanities, mathematics etc.)
 5. education of pupils of outstanding ability in special boarding schools. Which ones?
 6. other forms of education of pupils of outstanding ability. Which ones?
3. From which grade onwards would your preferred method of educating pupils of outstanding ability be applied?
4. Please mention which forms of education of pupils of outstanding ability are applied in your school?
5. How do you estimate the effectiveness of these forms?
6. What important changes were introduced during the past 5 years in the school where you work, or which changes take actually place in:
 - a) the organisation of the school?
 - b) the methods of working with able pupils?
 - c) the material equipment of the building?
7. Which of these changes are in your opinion the most favourable for the development of the pupils' abilities and why?

8. When you would have to decide about changes in the educational system, which renewals would you propose for the effective development of the youths' abilities:
- a) in primary school?
 - b) in infant school and at the subsequent other levels of education?

9. How often do you get in contact in order to gain essential and methodic knowledge with teachers:	(Indicate your answer by a cross, please)		
	often	sometimes	never
a. in other primary schools?			
b. in basic vocational schools?			
c. in technikum or liceum?			
d. at universities and in scientific institutions?			
e. with workers of the Institute for Teacher Training?			
f. with workers of other institutions, which?			

10. Which contacts do you consider the most effective to raise the knowledge of teachers?

11. Do you have favourable conditions to raise your professional knowledge systematically?

1. yes
2. no, why?

12. How much time do you weekly spend at:

1. lesson hours? about ... a-week
2. activities with school youth out of lesson hours? about ..h.
3. volunteer work on behalf of the school? about .. h.
4. out of school volunteer work for the community? about .. h.

13. Memberships of political and other organisations:
14. Education (specialisation and faculty):

15. Years of work experience:

16. Age

17. Gender

- | | | |
|-------|------------|-------------|
| | 1. single | 3. divorced |
| | 2. married | 4. widowed |

18. Number of persons in the common household:

19. Do you have an own room at home?

1. yes
2. no

Questionnaire VI
(competitions in school subjects)

1. Did you help pupils at the preparation for the competition?
 1. yes
 2. no
 3. other answers:
 1. individual help and verification of the realisation of tasks during the lessons
 2. individual help and verification of the realisation of tasks outside of lesson hours
 3. work with the pupil within a circle of interest at school
 4. work with the pupil within an interschool circle of interest
 5. other help, which?
2. If so, what kind of help was it?
3. How often you helped?
4. Were there other persons who helped the pupil at the preparation for the competition?
 - a. other teachers
 - b. the librarian
 - c. the parents
 - d. peers
 - e. others, who?
5. Did you obtain precise information about the requirements for the contest?
 1. yes, precise
 2. yet, but not very precise
 3. insufficient
 4. other answers:
 1. directly from the organisers at a meeting devoted to the organisation of the competition
 2. directly from the organisers, but at another occasion
 3. indirectly from the organisers (letter, telephone)
 4. from other teachers, the director of the school etc.
 5. other answers:
6. What sources of additional information about the requirements for the competition have you had?
7. Was there access to books, periodicals and other material needed to prepare for the contest?
 1. yes
 2. no, the following titles lacked:
8. Which criterion was used by the committee of the competition for qualification of a pupil for the provincial competition?
 1. obtainment of a required score
 2. obtainment of a required score together with additional selection principles:
 - preference for farmers', workers' children
 - preference for rural youth
 - preference for girls (boys)
 - other preferences, which?
 3. obtainment of the highest place at the regional contest, irrespective of the score
 4. obtainment of the highest

place within a group of pupils
who have special preferences
(children of farmers, workers
.....)

5. other, which?

9. What way of qualification for a higher stage of the competition do you consider the best?
10. Why?
11. Our research shows that research that few children of manual workers or farmers take part in the provincial competitions. What in your opinion is the cause of this?
12. Must the participation of workers' and farmers' children in the provincial competitions be augmented, although they did not obtain the required score?
 1. yes
 2. no
 3. other answers:
13. If so, why?
14. If not, why not?
15. Did you pilot your pupil at the provincial contest? Have you been an organiser of the competition? Have you been an observer?
 1. yes 2. no 3. other answers:
 1. yes 2. no 3. other answers:
 1. yes 2. no 3. other answers:
16. If you were absent, why?
17. If so, please indicate whether the competition offered the opportunity to getting acquainted and exchanging knowledge and opinions:
 1. between pupils?
 2. between teachers?
 3. between pupils and teachers?
 4. was there no such opportunity?
 5. other answers:
18. What was most favourable for entering into contacts?
19. What was the main hindrance for these contacts?
20. What in your view needs to be changed or improved in the organisation of the competition?
21. What do you consider the most valuable in the organisation of provincial competitions?
22. What moral or material satisfaction had you or the school because of participation of your pupil in the provincial contest?

Questionnaire VII
(for organisers of the competitions)

Opinion of the organiser of the competition
on the education of talented pupils

With regard to your experiences we kindly ask you to answer the following questions.

1. From which schools in your province originated the most pupils of outstanding ability in a) Polish, b) mathematics. Please mention the addresses of these schools
2. Why do most talented pupils come from these very schools and not from other schools, in your opinion?
3. How the outstanding abilities of the pupils of these schools manifest themselves?
4. What level of knowledge was represented by the participants of the competition a) in Polish language b) in mathematics ..
5. Had the winners of the provincial competition such a level of knowledge, that one can say that they attained outstanding school success? Yes, No, Why?
6. Which and how many material prizes and other attractions were foreseen for the participants of the provincial competitions?
7. What difficulties you were faced with at the organisation of the competition?
8. Who might do away with these problems and in which way?
9. Other remarks on organisation, course and results of the competition

Questionnaire IX
(changes in life after entrance into secondary education)

IRWiR PAN

Warsaw, 5.V.1977.

To the participants in the provincial competitions
in Polish language and in mathematics, held in 1976.

Our institute has the pleasure to congratulate you with your participation in the provincial competition. We are interested in your study in secondary school. We would be very glad, when you would write us on the following theme: "What changed in my situation in life and at school after transition from primary to secondary school?"

We are especially interested in the following questions:

1. Is it easier for you to learn now, than in primary school, or is it more difficult?
2. In which aspects differ your teachers in secondary school from those you had in primary school (their way of teaching, their relation to you etc.)?
3. Have you more school-friends now, or less than in primary school? How do you regard your former and present friends?
4. Changed your interest in a future occupation? Why?
5. Were there some changes in your relation with your parents? If so, what and why?
6. Did some new problems arise, which you had not in primary school? If so, which problems?

We put no limits on the length of your answers. We expect, however, that these are not shorter than 2 pages of an exercise-book.

Please send your answers with your name or emblem to the following address:

POLISH ACADEMY OF SCIENCE INSTITUTE FOR RURAL DEVELOPMENT
00-330 Warsaw, ul. Nowy Swiat 72

The best and fullest answers will be printed in the "Cultural Weekly".

We assure you full discretion, when you indicate that you do not want your answers to be shown to anybody.

The leader of the Research Team on Culture and Education

ECTA-output.

EQUAL CELL PROBABILITY MODEL

AFTER ITERATION 0 THE LARGEST DEVIATION IS 0.00000

PEARSON 54817.62, AND LIKELIHOOD RATIO 78677.05 CHI-SQUARES
57 DEGREES OF FREEDOM

P-VALUE FOR LIKELIHOOD RATIO CHI-SQUARE IS .000

THE ESTIMATED LAMBDA EFFECTS, THEIR STANDARD ERRORS, AND THE STANDARDIZED VALUES
THESE THREE ARE FOLLOWED BY THE CORRESPONDING TAU
PARAMETER OF THE MULTIPLICATIVE MODELVARIABLES OF ONLY TWO LEVELS WHERE THE SINGLE EFFECT
SHOWS IS THE DIFFERENCE OF THE FIRST LEVEL, AND THE
AVERAGE EFFECT

1 2 3 4 5 6

	EFFECT	STD ERR	STOZD VAL	TAU PARAM
GRAND MEAN EFFECT	4.153			53.600
EFFECT FOR VARIABLES				
1 marks 1-high 2-else	-.676	.026	-25.880	.509
2 finalist 1=yes 2=no	-1.343	.026	-51.426	.251
3 place of residence	.410	.026	15.712	1.507
4 parents' occupation	.260	.026	9.938	1.236
5 gender 1-girl 2-boy	.176	.026	6.736	1.192
6 humanities science	.018	.026	.708	1.019
1 2	.538	.026	20.595	1.712
1 3	.128	.026	4.919	1.137
1 4	.151	.026	5.763	1.152
1 5	-.022	.026	-.827	.979
1 6	-.003	.026	-.131	.997
2 3	-.043	.026	-1.653	.958
2 4	.083	.026	3.192	1.037
2 5	-.036	.026	-1.398	.954
2 6	.008	.026	.299	1.008
3 4	.359	.026	13.743	1.432
3 5	-.082	.026	-3.134	.921
3 6	-.014	.026	-.531	.936
4 5	-.037	.026	-1.404	.954
4 6	-.003	.026	-.098	.997
5 6	.024	.026	1.092	1.029
1 2 3	.028	.026	1.054	1.028
1 2 4	-.014	.026	-.530	.936
1 2 5	-.009	.026	-.332	.991
1 2 6	-.011	.026	-.412	.949
1 3 4	-.065	.026	-2.470	.938
1 3 5	.052	.026	1.986	1.053
1 3 6	-.021	.026	-.789	.940
1 4 5	-.019	.026	-.714	.932
1 4 6	-.026	.026	-1.008	.974
1 5 6	.087	.026	3.327	1.031
2 3 4	-.052	.026	-1.985	.949
2 3 5	-.076	.026	-2.907	.927
2 3 6	-.013	.026	-.492	.987
2 4 5	.082	.026	3.131	1.055
2 4 6	-.009	.026	-.329	.991
2 5 6	-.045	.026	-1.725	.954
3 4 5	.074	.026	2.838	1.077
3 4 6	-.002	.026	-.057	.999
3 5 6	.007	.026	.254	1.007
4 5 6	.024	.026	.928	1.025
1 2 3 4	-.064	.026	-2.438	.938
1 2 3 5	-.030	.026	-1.161	.970
1 2 3 6	-.029	.026	-1.116	.971
1 2 4 5	-.001	.026	-.047	.999
1 2 4 6	-.035	.026	-1.323	.956
1 2 5 6	.001	.026	.028	1.001
1 3 4 5	.049	.026	1.837	1.049
1 3 4 6	.006	.026	.231	1.006
1 3 5 6	.004	.026	.146	1.004
1 4 5 6	.079	.026	3.028	1.042
2 3 4 5	.039	.026	1.507	1.040
2 3 4 6	.010	.026	.383	1.010
2 3 5 6	.009	.026	.335	1.009
2 4 5 6	-.007	.026	-.286	.943
3 4 5 6	-.007	.026	-.277	.993
1 2 3 4 5	.020	.026	.779	1.021
1 2 3 4 6	.024	.026	.937	1.025
1 2 3 5 6	-.004	.026	-.146	.936
1 2 4 5 6	.033	.026	1.260	1.013
1 3 4 5 6	-.030	.026	-1.159	.970
2 3 4 5 6	-.008	.026	-.323	.992
1 2 3 4 5 6	-.028	.026	-1.056	.973

APPENDIX D

Cumulative indices for major determinants of success.

Some readers might be more interested in a synthesis of research findings than a detailed analysis of various factors. In order to meet their wishes, cumulative categorical indices have been constructed for the following groups of determinants of success:

- conditions for study at home;
- interests;
- quality of the primary school.

The indices are the sum of the scores on several important variables. Favourable conditions for success are indicated by a low score on the index. Variables with a very strong relation to success had a wider range of scores, which implies that these variables were given extra weight. Missing cases have been deleted listwise: when at least one of the variables missed the given index was not computed. An overview of the selection of variables and their weighing will be given first.

The conditions for study at home are indicated by the scores on the following variables:

- educational level of the parents, with scores varying between 1 (both parents are graduates) and 9 (neither parent completed primary education - see table I-13a for a full description of the scores);
- family size, with scores varying between 1 (complete family with one child) and 8 (orphanage - see table I-12a);
- size of the home library, with scores between 1 (more than 100 books at home) and 4 (no books at home - see table I-16);
- kind of the place to study at home, with scores between 1 (a separate room) and 3 (no separate place - see table I-15).

It follows that the scores on the index for the conditions for study at home may vary between 4 and 24.

The pupil's interests are indicated by the scores on the following variables:

- interest in school subjects, with scores varying between 1 (an interest in the subject of the competition as well as in other subjects) and 4 (no interest for school subjects - see table I-20);

- subject of the competition(s) the pupil earlier participated in, with the following scores: 1 = took part in several contests, including contests in the subject of the relevant competition; 2 = took part in contests in the relevant subject only; 3 = took part in contests, but not in the subject of the present competition; 4 = did not participate before;
- membership of circles of interest, with the following scores: 1 = member of circles on various themes, including the subject of the relevant competition; 2 = member of circles on the subject of the competition only; 3 = member of circles on other themes; 4 = no member.

It can be seen that these variables are given the same weight and that the scores on the index for the pupil's interests may vary between 3 and 12.

The quality of the primary school is indicated by the scores on the following variables:

- subjects taught by teachers who had completed university, with the following scores: 1 = the subject of the contest and other subjects as well; 2 = the subject of the competition only; 3 = other subjects only; 4 = no graduated teachers in the school;
- the best equipped resource rooms, with codes 1 to 3 the same as for the previous variable and code 4 = no resource room in the school (see table IV-12);
- the most active circles of interest, with codes 1 to 3 as for the previous variables and code 4 = no circles of interest;
- availability of meals in the school canteen, with the codes: 1 = warm and cold meals; 2 = warm meals only; 3 = cold meals only; 4 = no canteen in the school (see table IV-17).

The variables are given the same weight, but three variables are also indicators of the conditions for the study of the subject of the contest. This implies an extra weight of these conditions over the indicator of the material equipment of the school (the available meals). The scores on the index for the quality of the primary school may vary between 4 and 16.

On the basis of the frequency distributions of the separate variables included in an index, a prediction could be made of the frequency distribution of the scores on that index for the situation of independence between the included variables (see the first column of tables I-st, I-in and IV-sch).

A comparison of these expected frequency distributions with the factual distribution of the scores on the three indices leads to the conclusion that the included variables were clearly related. This was particularly the case with the index for the conditions for study at home. When the scores on the included variables would have been random, score 10 on that index would be the most frequent. From the detailed analyses of these variables (see chapter XI, sections 2, 3, 5, and 6) it was known already that relatively many finalists had parents who were university graduates, lived in small complete families, etc. When these findings were taken into account, it could be expected that the mode would be 9. In reality score 6 was the most frequent. This indicated that favourable conditions were not independent, but cumulative. This could also be concluded from the tails of the observed frequency distribution: finalists who were in the most favourable category of each of the four included variables (i.e. those who scored 4 on the index) were much more represented than could be expected (2.8% instead of the expected .7%). On the other hand, there were also relatively many finalists in the most unfavourable categories of each variable, i.e. whose scores were on the other extreme of the scale (score 16 or more).

One of the most persistent findings from the detailed analyses in the previous chapters was a positive relation between the urbanization of the finalists' place of residence and the occurrence of favourable conditions for success. The scores on the indices were no exception to this rule: urban pupils scored lower (i.e. more favourable) on the indices than rural pupils.

The hypothetical negative relationship between the scores on the indices and the chance of scoring high rather than low at the finals was confirmed in the case of the index for the conditions for study at home: those with score 4 on this index got ten times better scores than those with score 20.

When a further analysis was made with regard to the pupils' local background, the negative relationship between the scores on the index and the scores at the finals remained, although it was less regular. Among the finalists who lived in a capital, those with score 8 on the index had the best chances of success

at the finals. Among the finalists who lived in another town, score 7 appeared the best.

An irregular relationship was found in the case of the index for the pupil's interests. The chances of success at the finals were probably better when the pupil's interests were concentrated on the subject on the competition than when he was interested in other subjects as well. The findings of the detailed analysis of the relation between the interest in school subjects and the scores at the finals (see p. 202) confirm this assumption.

The relationship between the scores on the index for the quality of the school and success at the finals was negative (in support of the hypothesis) but weak and with various exceptions. The findings in chapter 15 indicated already that facilities in school were poor predictors of success. The main explanation of this unexpected finding might be the presence of similar, better facilities in the neighbourhood of a school (e.g. in a near-by grammar school).

When these results are compared with the findings from the detailed analyses in the previous chapters of part two, the latter appear to be more useful. Synthetic indices have proved their use in science, especially for the solution of abstract theoretical problems. In the social sciences they have clear imperfections, however, because it is difficult to indicate which syndrom of phenomena and social facts favours the creation of desired social phenomena. Even small errors may lead to false conclusions.

Precise investigations seem to be better for the creation of social phenomena and processes than juggling with data.